



United States  
Department of  
Agriculture

Forest  
Service

Ashley  
National  
Forest

355 North Vernal Ave.  
Vernal, UT 84078

S/047/066

File Code: 1950

Date: June 16, 1999

Dear Friend:

I have enclosed a copy of the Decision Notice and Finding of No Significant Impact for the Deseret Generation and Transmission Minerals Plan of Operations Environmental Assessment (EA). I have also enclosed a final copy of the EA with Appendix H (Response to Comments Received During 30-day Comment and Review Period) and an updated table of contents and cover page.

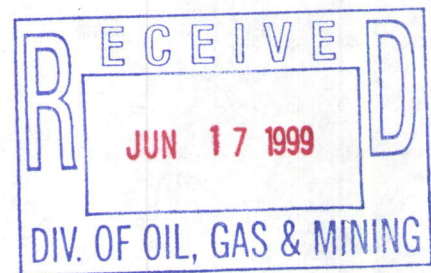
For additional information concerning this decision, feel free to contact me or Chauncie Todd at (435) 789-1181.

Sincerely,

BERT KULESZA  
Forest Supervisor

Enclosures:

Decision Notice and Finding of No Significant Impact  
EA



Decision Notice  
and  
Finding of No Significant Impact

DESERET GENERATION AND TRANSMISSION  
MINERALS PLAN OF OPERATIONS

U.S.D.A. Forest Service - Ashley National Forest  
Vernal Ranger District  
Uintah County, Utah

The Environmental Assessment (EA) for the Deseret Generation and Transmission (DG&T) Minerals Plan of Operations discloses the effects of the development, operation, maintenance, and reclamation of a limestone mine on Diamond Mountain. More specifically, the mine will be located in Sections 15, 16, 21, 22, T. 1 S., R. 22 E., SLM.

The purpose of the mining operation is to obtain high quality limestone in close proximity to the Bonanza Power Plant located southeast of the City of Vernal in Uintah County. The limestone will be used for emission control at the power plant.

The area considered in the proposal is within by National Forest System Lands and is accessed by a combination of Forest roads (FR), U.S. Highway (US), and/or County roads (CR).

**Decision**

Based on the results of the analysis documented in the EA and public involvement, it is my decision to authorize the Plan of Operations for both Alternatives A and C (EA 2- 3) with the mitigation measures incorporated as identified below (EA 14-24).

DG&T may develop, operate, maintain, and reclaim a limestone mine. This authorization will allow them to remove limestone from their mining claims on 80 acres of National Forest System lands for up to 35 years. The mining operation includes the mine site, access road, and haul route(s) and will be implemented as documented in their Plan of Operations with the associated mitigation measures added and identified below.

This authorization includes:

- The haul route will be FR 048 west to US 191 and then south to Vernal, Utah (Alternative A) and/or FR 048 east to CR 2804 and then south to just east of Vernal (Alternative C). Whichever route is used must be brought up to current safety standards as provided by Utah Department of Transportation (UDOT) and Forest Service prior to hauling (EA 21-22). The FR 048 and US 191 intersection will also be brought up to current safety standards prior to hauling.
- After the haul route(s) and FR 048/US 191 intersection are brought up to standard, approximately 60,000 tons of limestone will be removed in the first year. During the following years, 30,000 tons of limestone will be removed annually. There may also be other products (from waste rock) removed from the mine site as a market is developed.

- Drilling and blasting will be allowed once a year for a two to three week period in May or June. The timing will be coordinated with the Forest Service project administrator prior to blasting.
- Use of equipment and installation of facilities required for the operation may include: crushing facilities, water well up to 400 feet deep, 12.5 kw propane generator, portable tool shed approximately 10 feet by 40 feet, two sediment detention ponds, a 40,000 gallon underground water tank, a portable fuel tank holding no more than 1,000 gallons; and a front end loader, D8 dozer, air track drill, excavator and dump trucks for extracting, loading, and hauling the limestone.
- The existing temporary .75 mile access road from FR 048 to the mine site will be upgraded. The road will be classified as a "system road" throughout the duration of the mine for administrative purposes. In 35 years, or after the mine is closed and rehabilitated, the road will be evaluated to determine if it needs to be closed or if a nearby road should be closed instead. The rationale will be based on which road provides traditional access with the least amount of resource affects.
- The amount of active mine disturbance will be limited to five acres at any one time. Reclamation of the mine site will occur in accordance with mitigation measures (EA 14-24) and Appendix E (Best Management Practices, Reclamation for DG&T). The .75 mile access road from FR 048 to the mine site will not be included in this five acre limitation.

#### Mitigation Measures:

All mitigation measures identified for both action alternatives will become part of the Plan of Operations authorized by this decision. This decision allows the use of either or both haul routes identified in the action Alternatives. Based on DG&T's Plan of Operations submitted as the proposed action (Alternative A), most likely they will choose to haul on US 191 versus FR 048 east to CR 2804. By incorporating both routes in this decision, the Plan of Operations will remain flexible for future consideration of CR 2804. DG&T is required to upgrade/reconstruct the haul route (or routes) prior to transporting limestone.

Mitigation measures (EA 14-24) are identified below and in the analysis. These mitigation measures and Appendix E will become part of the Plan of Operations required for the operation of the mine which includes the use of the haul route(s).

Soils: Stockpiling top soil for future rehabilitation will mitigate some impacts. Safeguards will be required to meet Federal, State, and local requirements in the using and storing oils and equipment fuels to prevent spills and to catch and remove any contaminated material from accidental spills. Soil compaction will be mitigated by loosening soils through ripping and discing areas during the reclamation phase. It will be expected that 95 to 100% of the area could be returned to a productive condition through the use of reclamation best management practices (Appendix E) by the end of the reclamation period.

Water Quality: Two small sediment/evaporation ponds will be constructed, where no water is returned to a stream channel. These ponds will prevent any indirect water quality effects from occurring. Appendix E discusses in detail the criteria for location, design, and construction and general operation procedures are explained. Also discussed is the proper methods of reclamation of the ponds. These criteria will assure that no indirect and potential cumulative effects will occur downstream from any potential contaminated surface water. Water within these ponds could also be recycled back into the crushing process and/or used for dust abatement on the roads.

Direct or indirect effects will be averted with proper and frequent road maintenance. If frequent road maintenance is a problem, other mitigation measures such as road surfacing with at least four inches of aggregate will be considered.

Air Quality: Water will be used as the primary controlling agent for dust at the crusher site and on the haul road. A dust palliative, such as magnesium chloride, could also be used on the haul road to minimize dust emissions and reduce the amount of water needed.

Vegetation: Topsoil and overburden will be stockpiled and revegetated for later use in reclamation. Reclamation will take place concurrently. As an area was mined out and another area disturbed, the mined out area will be reclaimed. Reclaimed areas will be revegetated with native species. The newly revegetated areas will be fenced to keep livestock from damaging the developing vegetation.

The invasion of noxious and nonnative invasive plants will be mitigated through several methods. By accomplishing concurrent reclamation and not allowing disturbed area to lie dormant for long periods of time, erosion and the establishment of noxious weeds will be minimal. A monitoring system, consisting of annual inspection for noxious weeds, and the use of suitable control methods will also keep noxious weeds from going to seed and spreading. Reclamation, monitoring and control of noxious weeds will be required until final reclamation is accepted by the Forest Service.

Wildlife: Topsoil and overburden will be stockpiled and revegetated for later use in reclamation. Reclamation will take place concurrently. As an area was mined out and another area disturbed, the mined out area will be reclaimed. Reclaimed areas will be revegetated with native species. The newly revegetated areas will be fenced for approximately 3 years to keep livestock from damaging the developing vegetation.

Visual Quality: With concurrent reclamation the actual size of the disturbance will be kept small. When mining is completed in one area, mining will start in another area and the first area will be reclaimed within three years. Buildings with a low roof profiles and natural colors approved by the Forest Service Project Administrator will be required to reduce the day to day impact on visual quality.

Recreation: An additional 15 to 20 vehicles per day will be an increase in the average daily traffic on FR 048 (see Transportation below). Controlling dust on this section of FR 048 by use of water and a dust palliative will help control dust from all traffic. Impacts will be mitigated by not allowing mining activities (hauling and processing) on holiday weekends and the opening day of general rifle hunting seasons, unless special approval is received from the Forest Service authorized officer. Impacts will be further mitigated by not allowing hauling activities on weekends unless special approval is received from the Forest Service authorized officer. These actions will mitigate the noise and traffic safety impacts during those more heavily used time periods.

Transportation: The Forest Engineer will approve the designs for the road upgrade. That portion of FR 048 used for hauling will be upgraded to a consistent double lane width and provisions made to handle a sizeable component of heavy truck traffic from the mine.

Use of the dispersed areas adjacent to the road will be channeled to well located points of access with adequate sight distances, signing, and safety features. Much off-highway vehicle and ATV use occurs in this area and provision will be made to safely accommodate or restrict this type of activity during hauling periods.

As described above, the mine access road will be reconstructed by importing material to build up the surface rather than cutting or sidecasting. The cattleguard located at the intersection of US 191 will



also need to be replaced with a double lane cattleguard. The culverts at Reader Creek will need to be replaced with culverts sized to adequately handle the flow of water and protect the road surface. This culvert will be designed to be able to pass a 100 year flood. This culvert will also be well seated into the substrate and designed not to pose a passage barrier to fish. Replacing the existing culverts will help keep additional sediment from entering Reader Creek during these high flows and will eliminate the need to close the road until repair work is completed in years of high runoff. Water and/or the use of a dust palliative will be needed for dust abatement.

Under Alternative A, the intersection of FR 048 with US 191 does not meet minimum sight distances for safe ingress and egress for passenger vehicles, recreation vehicles, or large trucks. The existing intersection at US 191 is on a sharp horizontal curve combined with a cresting vertical curve and super elevation. The situation is made more serious when large trucks and recreation vehicles pulling out, turning, slowing down and stopping are entered into the traffic mix. Measured sight distance from the south-west approaching traffic lane of US 191 is roughly 310 feet, and from the north approaching lane about 300 feet. Posted traffic speed limits are 40 m.p.h. both directions, but average travel speeds are probably closer to 45-55 m.p.h., especially from the north.

Using a 3% grade factor on wet pavement, American Association of State Highway and Transportation Officials recommended sight distances for total safe stopping distances are roughly:

40 m.p.h.-----307-342 feet.

50 m.p.h.-----432-488 feet.

This intersection will be brought up to current safety standards as provided by UDOT and the Forest Service prior to hauling (EA 21-22). There are three (or more) basic options for the site. The options are:

- (1) Relocation of the intersection north up the highway tangent toward the Scenic Byway Interpretive Site to a location with better visibility. This is not a preferred option because of the potential impact on the new Scenic Byway site.
- (2) Reconstruction of the existing intersection to meet geometric requirements, i.e. laying back slopes, changing grades and/or highway curvature, removing visual obstructions, possibly adding turning and deceleration lanes, etc.
- (3) Move the intersection to line up at the point of intersection of US 191 tangents coming from both directions into the curve. Make the main FR 048 entrance line up with the southernmost tangent, provide a second access to the north and use an island, stop signs and split, double access lanes to channel traffic onto and from US 191.

A more in- depth analysis of the intersection and related features with Utah Department of Transportation will be made to address the safety issues prior to hauling.

Roadless: The mitigation measures under Recreation will greatly reduce the impact of the mining activities on the characteristics above by limiting activities and reducing noise on weekends, holidays, and some hunting seasons.

## **Reason for Decision**

I support authorizing the limestone mine itself. The purpose of and need for the mine has been demonstrated and the material is needed for emission control at the Bonanza Power Plant. This business supports the community as well as the adjacent states supplied with electricity generated at this plant.

I do have concern with the haul routes associated with the mine. My decision allows the use of either or both haul routes identified in the EA. Based on DG&T's Plan of Operations (Proposed Action - Alternative A), they will likely choose to haul on US 191 (versus FR 048 east to CR 2804) because it is more economically viable for their company. The US 191 route will require less road reconstruction, maintenance, and dust abatement and is already a higher standard road designed for interstate commerce, which will provide for higher speeds for haul trucks.

My purpose for incorporating both routes in this decision allows for the Plan of Operations to remain flexible for future consideration of CR 2804 as the haul route. This decision which allows DG&T to choose their haul route, also requires DG&T to upgrade/reconstruct any route (or routes) prior to transporting limestone (per the mitigation measures identified in the EA and above).

In my opinion, choosing only Alternative C would have provided a better overall mix of goods and services while mitigating safety and transportation considerations. I believe the use of CR 2804 would be a safer route for Vernal City and Uintah County residents and tourists because my decision will allow for an additional 15 to 20 trucks a day. Most likely DG&T will use the US 191 route which will cause haul trucks to transport limestone through downtown Vernal. The route in Alternative C would prevent additional congestion downtown and on the US 191 switchbacks just north of Vernal.

US 191 is a designated National Scenic Byway and is promoted as such by private entities as well as multi-agency partnerships for the purpose of promoting tourism in the Uintah and Daggett County, Utah area. Due to this designation, additional tourist traffic will continue to be promoted and drawn to the area. Adding additional commercial traffic to this Byway over the long-term is inconsistent with the Scenic Byway designation. I feel the number of heavy trucks required by the mine combined with the recreation traffic could cause an unsafe mix of vehicles on US 191.

In addition, I feel additional commercial truck access to US 191 over the long-term would be in conflict with the Flaming Gorge-Uintas Scenic Byway Corridor Management Plan (October 1997). This Corridor Plan was prepared to help implement the vision, mission and goals created by the Byway Steering Committee. The Committee includes members from Uintah and Daggett County, Utah Department of Transportation, Utah Division of State Parks and Recreation, Utah Division of Wildlife Resources, Dinosaurland Travel Board, Bureau of Land Management, National Park Service, and the Ashley National Forest. The vision includes fostering a greater understanding, appreciation, and enjoyment of the area's unique and distinctive qualities. A strong program for the Byway will extend visitation and encourage new and return visits, thereby enhancing opportunities for regional community tourism programs. The following goals underlay the development of this Corridor Plan: increase the number of visitors and the length of their stays along the Byway to increase economic benefits to the region including the communities of Vernal and Manila, Utah; distribute recreational use along the Byway route; and assure the safety and convenience of the visiting public. Also, this Byway may soon be designated as an All American Road, which is the highest designation for a road promoted for scenic driving and recreation.

I encourage DG&T to work closely with Uintah County, Vernal City, and other partners who recognize and support the values of the Scenic Byway (US 191). The consequences of encouraging the Alternative C route would require significant County expenditures on CR 2804 unless other financial

arrangements can be made. County Commissioners have expressed a concern that use of the Alternative C route will be a financial hardship. This is true. However, over the long-term, use of Alternative C route would allow the Scenic Byway to continue to draw tourists to the area which is in the best interest for both the County, City, and Ashley National Forest. Benefits from tourism would help mitigate the costs of the needed improvement of CR 2804 via tax receipts. I believe heavy truck traffic will reduce the quality of tourists' experience and safety on the Byway.

In summary, I am approving the Plan of Operations under either route scenario because restricting DG&T from using US 191 is outside of my authority. I believe the reconstruction of the Alternative C route will better serve the forest users, community, and DG&T over the long-term (up to 35 years) and hope DG&T will work with Uintah County and Vernal City to find ways to make CR 2804 a viable haul alternative.

### **Applicable Laws, Regulations, and Policies**

1872 Mining Act - High grade limestone used for controlling stack emissions is considered as a locatable mineral and is authorized and regulated by the 1872 Mining Law and the Forest Service mining regulations. Under the 1872 Mining Law, the locator has the exclusive right of possession and free and open access to valuable mineral deposits. The Forest Service mining regulations (36CFR 228) set forth rules and procedures through which use of the surface of National Forest System lands shall be conducted so as to minimize adverse environmental impacts.

Ashley National Forest Land and Resource Management Plan - Upon review, I found the actions of this decision are consistent with the goals, objectives, and guidelines of the Ashley National Forest Land and Resource Management Plan (Forest Plan), its associated Final Environmental Impact Statement (October 1986), and all subsequent amendments to the Forest Plan. The following paragraphs discuss my reasoning for this finding:

The mine site is within management areas f (dispersed recreation roaded) and n (range of resource uses and outputs, commodity production modified for amenity production). Minerals activities are not restricted (by prescription) (Forest Plan IV-8 and IV-11). In addition, under Vernal Ranger District Exceptions to Prescriptions (Forest Plan IV-73), an exception occurs for the portion of management area f east of US 191. The Forest Plan states that the management intent in this portion of the Management Area is to continue utilization of commodities such as livestock forage. This decision is consistent with this exception.

Mitigation measures (EA 14-24) and EA Appendix E (Best Management Practices, Reclamation for DG&T) will be implemented to control mineral activities in order to protect other resources and restore disturbances resulting from the mine or activities associated with the mine.

My decision requires DG&T to accomplish the needed reclamation work in the interim (as mining is completed in areas, disturbed areas will be reclaimed) and also after the mine is closed.

Materials created by mining operations (drilling, processing, and site preparation) will be stockpiled within the project area. There are no floodplains within the project area. Topsoil will be stockpiled and used for reclamation (EA 14).

The EA discloses the affects of the action on surface resources (EA 14-24). There are no unique or sensitive surface resources within the project area. In addition, mitigation measures will be implemented to minimize impacts on vegetation, soils, wildlife habitat, and water quality.

There are no critical adverse impacts associated with this decision. This conclusion is based on the size of the operation which will remain less than five acres in size, mitigation measures, and Appendix E.

Additional stipulations may be required in addition to the mitigation measures and Appendix E if circumstances arise which need resolution. Additional requirements will be handled through the administration of the mining plan of operations. A list of special stipulations can also be found in Appendix B of the Forest Plan.

Roads Moratorium - This decision is consistent with the moratorium issued February 12, 1999 (Federal Register/Vol. 64, No. 29). The project area is outside of areas inventoried as roadless and areas with roadless characteristics (EA 17).

### **Public Involvement**

Public issues and comments regarding the DG&T proposed limestone mine were solicited for incorporation into the environmental analysis through the scoping process. A scoping statement that described the actions to be analyzed was prepared and submitted to the public. Letters were sent to interested parties on July 22, 1998 and a legal notice was published in the Vernal Express on July 29, 1998. The proposal has also been listed in the Ashley National Forest Guide to Public Involvement Opportunities (Quarterly Schedule) since July 1998.

A total of 7 written comments and 2 verbal replies were received by the Forest Service concerning the limestone mine proposal during the scoping phase.

The EA was mailed to interested and affected individuals and groups on March 22, 1999 for a 30-day comment and review period. A legal notice was also published on March 24, 1999 to announce the availability of the EA for public review.

The 30-day comment and review period ended on April 23, 1999. Seven comments were received. Responses to the comments received are documented in Appendix H (Response to Comments) of the EA.

Additional public involvement efforts were made via radio news releases and presentations at County Commission and Vernal City meetings.

### **Consideration of Issues**

Issues were developed from public and internal scoping results. The issues are the effects of the project on:

- Soils - effects on soil erosion
- Water quality - effects on surface and ground water, and water rights
- Air quality - effects on air quality from the creation of dust
- Vegetation - effects on vegetation, probability of long term reclamation, and establishment of noxious and nonnative plants
- Wildlife habitat and Management Indicator Species (MIS) - short and long term effects on habitat and MIS species

- Visual quality - short and long term effects on visual quality of the area
- Recreation - effects on recreation use of the area
- Transportation - haul routes and safety
- Roadless Areas - effects on roadless areas and potential wilderness designations

Issues were considered throughout the analysis. Environmental consequences of the proposed action and alternatives were disclosed in Chapter IV of the EA.

Alternatives were developed to respond to the Transportation issue. Because of the traffic on US 191 and its Scenic Backway designation, Alternative C (after reconstruction) will have less impact on safety and transportation. Mitigation measures were developed for both action alternatives to minimize impacts on the following issues: soils, water quality, air quality, vegetation, visual quality, recreation, and transportation. No significant impacts are anticipated to wildlife habitat under either alternative. As noted in the EA (23), the mitigation measures under the recreation issue will minimize impacts of the mining activities on roadless characteristics.

### **Alternatives Considered**

#### **Proposed Action**

In the first year of the proposed operation, approximately 60,000 tons of crushed limestone would be removed. During the following years, 30,000 tons of limestone would be removed. The first years' operation would produce approximately 12,000 tons of waste material. The first year of operation would see approximately three acres of disturbance. The pit would be less than one acre. The remaining disturbance would be approximately two acres for work activities related to mining. It is intended to limit the amount of active disturbance to five acres at any one time. Drilling and blasting would be expected to take place once per year for a two to three week period. The pit would be shot in thirty-five foot lifts. The most likely times would be in May or June. The operation is planned for a 35 year period. Over the life of the mine it is expected to produce 1,300,000 tons of crushed limestone and 260,000 tons of waste rock. Over the life of the project, a total of approximately 80 acres could be disturbed and subsequently reclaimed.

The proposed mine site would include crushing facilities, a water well up to 400 feet deep, a 12.5 kw propane generator, a portable tool shed approximately 10 feet by 40 feet, two sediment detention ponds, a 40,000 gallon underground water tank, a portable fuel tank holding no more than 1,000 gallons, and a front end loader, D8 dozer, air track drill, excavator and dump trucks for extracting, loading, and hauling the limestone.

#### **Alternative A: Proposed Action with U.S. Highway 191 Haul Route**

This alternative, as described under Proposed Action, would allow DG&T to develop, operate, maintain and terminate a mining operation located in Sections 15, 16, 21, 22, T. 1 S., R. 22 E., SLM, as described in their Plan of Operations (EA Appendix F) with mitigation measures to protect other resource values. The haul route from the mine would be via FR 048 to US 191 and then south to Vernal, Utah.



### **Alternative B: No Action Alternative**

Section 1502.14(d) of the National Environmental Policy Act (NEPA) requires that the alternatives analysis in the environmental assessment (EA) include a "no action" alternative. Under the "no action" alternative, the Proposed Action would not be implemented and current land use practices would continue with mitigation measures to reclaim the existing test pit area.

However, the Forest Service's authority to implement a "No Action" alternative in this case is limited. Under the 1872 Mining Law, the locator has the exclusive right of possession and free and open access to valuable mineral deposits. This alternative was used as a basis of comparison of impacts for the other alternatives.

### **Alternative C: Proposed Action with County Road Haul Route Alternative**

This alternative was developed to reduce heavy truck traffic on US 191. This alternative would be similar to Alternative A in that DG&T would be allowed to develop, operate, maintain, and terminate a mining operation as described in their Plan of Operations (Appendix F) with mitigation measures to protect other resource values. This alternative proposes to use County Route 2804 as the main access route to Vernal instead of US 191. The route would take mine traffic east from the mine via FR 048, County Route 2804, south to Vernal, and down 1500 East to US 40. This route would be approximately 2 miles longer than the route in Alternative A.

### **Other Alternatives Considered but Dismissed from Detailed Analysis**

1. An alternative that would mine limestone from a different area was considered. The "different area" is located northeast of the project area and was dismissed from detailed study for the following reasons:
  - In 1997, DG&T tested two sites for limestone, the proposed site in the EA and a second site northeast of the proposal. At that time the Forest Service did an analysis of the two sites and authorized DG&T to drill and sample both sites. From the samples, DG&T preferred the site proposed in the EA because it contained a larger supply of limestone and it was also a more pure form of limestone which would better meet their needs.
  - The Forest Service preferred the proposed site in the EA versus the area located northeast because it was closer to FR 048 and had less anticipated impacts on wildlife habitat. The two sites were about the same distance from the inventoried roadless area located 1.25 miles to the north.

After limestone samples were removed and tested, the Forest Service made the decision to allow DG&T to remove a bulk sample from the proposed site to run through the air pollution control process at the power plant. The test results were satisfactory. DG&T then submitted the plan of operations which led to the development of the proposed action disclosed in the EA.

2. An alternative was considered that would require DG&T to process the limestone off National Forest System Lands. This alternative was dismissed from detailed analysis because preliminary discussions determined this alternative would not be economically efficient and much of the reject material necessary for reclamation would be removed from the mine site and would have to be imported to the site for reclamation.

3. An alternative was considered that would provide for an alternate haul route from the mine site east on FR 048 and then south on FR 217. This alternative was dropped from detailed study for the following reasons:
  - The existing condition of the system road is a two-track dirt road that would require major reconstruction before it could be used.
  - FR 217 travels through transitory range for big game and sage grouse habitat with leks.
  - By reconstructing the two-track road, the type of use would change. Whereas, reconstructing FR 048 would not change the type of vehicles that could access the area.
4. An alternative was considered that would require DG&T to transport all water needed for the operation and dust abatement from off Forest. This alternative was dismissed because water rights are determined by the State. DG&T applied for water rights from the State. The State has approved water rights for this proposal.

### **Finding of No Significant Impact**

The actions authorized under Alternatives A and C will not have a significant effect on the quality of the human environment individually or cumulatively; therefore, an environmental impact statement is not needed. This finding is based on the environmental analysis documented in the EA and the significant factors described in 40 CFR 1508.27. The following factors concerning the context and intensity of the expected impacts of the alternatives were considered:

#### **Context**

The physical and biological effects are limited to the proposed mine site and the access road. Over the 35 years of operation, the site will less than 80 acres and the road will remain .75 miles.

#### **Intensity/Severity**

1. Both beneficial and adverse effects have been considered and this action will not have a significant effect on the quality of the human environment (EA 14-28).
2. The actions will not significantly affect public health and safety. The mitigation measures required will protect public health and safety on the short- and long-term. Transportation concerns are mitigated as well as air quality concerns. All mining activities would be required to meet Utah State standards for particulate emissions. (EA 15-16; 20-22)
3. The project will not affect any unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. This is based on information gathered through records and site specific field inventories (Planning Project Record, 1950 file designation).
4. Based on public involvement, the effects on the quality on the human environment are somewhat controversial but minimal. Opinion was expressed that a decision to mine will impact inventoried roadless areas. This impact is thoroughly discussed in the EA (11-13; 22-24; 26-18) and in EA Appendix H (Response to Comments). The impacts are not significant based on the following:

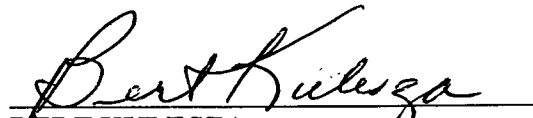
- The inventoried roadless area is located approximately 1.25 miles north of the project area (Chapter III - Affected Environment, EA 12). The distance is sufficient enough to buffer most mining activity generated at the site.
  - The most likely impact to the inventoried roadless area would be the effect of noise from blasting and heavy trucks on the perception of remoteness (Chapter IV, EA 23). Drilling and blasting would be expected to occur once a year for a two to three week period (Chapter 1 - Introduction, Section B - Proposed Action, EA 1). Truck noise heard from within the roadless area would be difficult to distinguish from the already present sounds of truck traffic on US 191 (Chapter III and Chapter IV, EA 12 and 23, respectively). The Highway is closer to the inventoried roadless area, within about 5/8 mile, than the mine site. The sound of blasting would not change the type of noise heard within the roadless area. Blasting can already be heard within the southern portion of the roadless area from the much larger existing open pit phosphate mine located along US 191 and the southern boundary of the Ashley National Forest. Mitigation measures to restrict mining activities (hauling and processing) during higher recreation time periods such as holiday weekends and some hunting seasons are part of the proposal. General weekends would also restrict mining activities unless special approval is received from the Forest Service authorized officer (Chapter IV, EA 20). These mitigation measures would reduce any impact of the mining activities on roadless characteristics (Chapter IV, EA 23).
  - The proposal is to mine no more than five acres at one time (Chapter I - Introduction, EA 1). The size of the mine along with the mitigation measures contribute to the lack of significant impacts (Chapter V, EA 27).
  - When considering past, present, and future activities, this proposal would not change or substantially add to the existing use patterns within the inventoried roadless area. Neither action alternative is anticipated to significantly affect characteristics within the roadless area because of vegetation cover between the project area and the roadless area boundary, and the type and amount of ongoing activities in the general project area (motorized recreation, livestock grazing, and recent yurt construction) (Chapter V - Cumulative Impacts, EA 26 - 27) nor will it significantly diminish the ability of a roadless area visitor to achieve the degree of solitude and remoteness that is currently possible.
5. The actions do not involve highly uncertain, unique, or unknown environmental risks to the human environment. All actions have been conducted before, and Forest staff members have considerable expertise in carrying out the actions associated with this decision (actions such as project administration and monitoring).
  6. The actions in this decision will not establish a precedent for future actions with significant effects nor does it represent a decision in principle about future consideration. The precedent set in this analysis was made by the 1872 Mining Act. However, this decision does not set a precedent for the type of documentation or mitigation for future proposals that may have significant effects.
  7. The cumulative effects of the proposed actions have been analyzed with consideration for the past, present, and foreseeable future activities on adjacent National Forest System Lands (EA 24-28).
  8. A cultural resource survey of the area was completed on October 2, 1997 and reviewed by the State Historic Preservation Office. Result of the survey was "No Effect" and is documented in the Planning Project File (file designation code 1950).

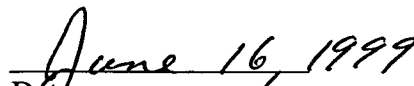
9. The actions are not likely to adversely affect endangered, threatened, or sensitive plant or animal species, critical habitat, or unique natural plant communities (EA 6-9; 16-19; 25 and Biological Evaluation/Assessment for Wildlife and Plants).
10. None of the actions threaten a violation of Federal, State, or local laws imposed for protection of the environment. This will be insured by carrying out the decision and administering the associated plan of operations in a way that is consistent with the standards and guidelines required in the Forest Plan; mitigation measures identified in the EA and above; State approved Best Management Practices will be used to protect water quality [also refer to EA Appendix E (Best Management Practices, Reclamation for DG&T)]; and State standards for particulate emissions. If implementing any requirement above results in effects significantly higher than anticipated, because of unforeseen site factors or events, appropriate corrective measures will be considered and implemented.
11. This project is consistent with the Forest Plan's direction for management areas f (dispersed recreation roaded) and n (range of resource uses and outputs, commodity production modified for amenity production). Minerals activities are not restricted (by prescription) (Forest Plan IV-8 and IV-11). In addition, under Vernal Ranger District Exceptions to Prescriptions (Forest Plan IV-73), an exception occurs for the portion of management area f east of US 191. The Forest Plan states that the management intent in this portion of the Management Area is to continue utilization of commodities such as livestock forage. This decision is consistent with this exception.
12. This decision will not result in a significant effect on the long term soils productivity because of the affected environment (type of soils and their existing condition, EA 3) and the anticipated effects with mitigation measures to be implemented (EA 14).
13. No flood plains or wetlands are involved in this decision.

This decision is subject to appeal pursuant to 36 CFR 215.7. A written Notice of Appeal must be postmarked within 45 days after the date this decision is published in the Vernal Express (expected date is **June 16, 1999**). The Notice of Appeal should be sent to U.S.D.A Forest Service, Intermountain Region, ATTN.: Appeals Deciding Officer, 324 25th Street, Ogden, Utah 84401, phone (801) 625-5605. Appeals must need the content requirements of 36 CFR 215.14.

If no appeal is received, implementation of this decision may occur on, but not before, 5 business days from the close of the appeal period. If an appeal is received, implementation may not occur for 15 days following the date of appeal disposition.

For further information concerning this decision, contact Chauncie Todd at the Ashley National Forest, 355 N. Vernal Ave., Vernal, UT 84078 or phone (435) 789-1181.

  
BERT KULESZA  
Forest Supervisor

  
Date



United States  
Department of  
Agriculture



Forest  
Service

Intermountain  
Region

# DESERET GENERATION AND TRANSMISSION MINERALS PLAN OF OPERATIONS

ENVIRONMENTAL ASSESSMENT

VERNAL RANGER DISTRICT  
ASHLEY NATIONAL FOREST  
JUNE 1999



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**Appendix B** - Non Listed Vertebrate Species Located on and/or Adjacent to Study Site (3 pages + cover)

**Appendix C** - Potential Endangered, Threatened, and Sensitive Vertebrate Species Occupying Uintah County Utah (1 page + cover)

**Appendix D** - Noxious Weeds (2 pages + cover)

**Appendix E** - Best Management Practices, Reclamation for DG&T (7 pages + cover)

**Appendix F** - DG&T Plan of Operations (21 pages + cover)

**Appendix G** - Maps (3 pages + cover)

**Appendix H** - Response to Comments

**DESERET GENERATION AND TRANSMISSION  
MINERALS PLAN OF OPERATIONS  
ENVIRONMENTAL ASSESSMENT**

**CHAPTER I - INTRODUCTION**

**A. Purpose and Need**

On June 29, 1998, Deseret Generation and Transmission (DG&T) proposed a plan of operations to develop, operate, maintain, and terminate a mining operation to remove limestone from National Forest System lands.

The purpose of DG&T's plan of operations is to obtain high quality limestone in close proximity to their Bonanza electrical generation plant in Uintah County. The limestone would be used for emission control at the power plant. The limestone would be extracted by excavation with heavy equipment from a site in the Madison Limestone Formation. The site is located in Uintah County, Utah, approximately 1 mile east of the U.S. Highway 191 intersection with the Diamond Mountain Road [also known as Forest Development Road 048 (FDR 048)], in Sections 15, 16, 21, 22, T. 1 S., R. 22 E., SLM.

**B. Proposed Action**

In the first year of the proposed operation, approximately 60,000 tons of crushed limestone would be removed. During the following years, 30,000 tons of limestone would be removed. The first years' operation would produce approximately 12,000 tons of waste material. The first year of operation would see approximately three acres of disturbance. The pit would be less than one acre. The remaining disturbance would be approximately two acres for work activities related to mining. It is intended to limit the amount of active disturbance to five acres at any one time. Drilling and blasting would be expected to take place once per year for a two to three week period. The pit would be shot in thirty-five foot lifts. The most likely times would be in May or June. The operation is planned for a 35 year period. Over the life of the mine it is expected to produce 1,300,000 tons of crushed limestone and 260,000 tons of waste rock. Over the life of the project, a total of approximately 80 acres could be disturbed and subsequently reclaimed.

The proposed mine site would include crushing facilities, a water well up to 400 feet deep, a 12.5 kw propane generator, a portable tool shed approximately 10 feet by 40 feet, two sediment detention ponds, a 40,000 gallon underground water tank, a portable fuel tank holding no more than 1,000 gallons, and a front end loader, D8 dozer, air track drill, excavator and dump trucks for extracting, loading, and hauling the limestone.

**C. 1872 Mining Act**

High grade limestone used for controlling stack emissions is considered as a locatable mineral and is authorized and regulated by the 1872 Mining Law and the Forest Service mining regulations. Under the 1872 Mining Law, the locator has the exclusive right of possession and free and open access to valuable mineral deposits. The Forest Service mining regulations (36CFR 228) set forth rules and procedures through which use of the surface of National Forest System lands shall be conducted so as to minimize adverse environmental impacts.

#### **D. Scoping**

Public issues and comments regarding the DG&T proposed limestone mine were solicited for incorporation into this environmental analysis through the scoping process. A scoping statement that described the actions to be analyzed was prepared and submitted to the public. Letters were sent to interested parties on July 22, 1998 and a legal notice was published in the Vernal Express on July 29, 1998. The proposal has also been listed in the Ashley National Forest Guide to Public Involvement Opportunities (Quarterly Schedule) since July 1998.

A total of 7 written comments and 2 verbal replies were received by the Forest Service concerning the limestone mine proposal.

#### **E. Issues**

Issues were developed from public and internal scoping results. The issues are the effects of the project on:

- Soils - effects on soil erosion
- Water quality - effects on surface and ground water, and water rights
- Air quality - effects on air quality from the creation of dust
- Vegetation - effects on vegetation, probability of long term reclamation, and establishment of noxious and nonnative plants
- Wildlife habitat and Management Indicator Species (MIS) - short and long term effects on habitat and MIS species
- Visual quality - short and long term effects on visual quality of the area
- Recreation - effects on recreation use of the area
- Transportation - haul routes and safety
- Roadless Areas - effects on roadless areas and potential wilderness designations

## **CHAPTER II - ALTERNATIVES**

#### **A. Alternative A: Proposed Action with U.S. Highway 191 Haul Route**

This alternative, as described above under Proposed Action, would allow DG&T to develop, operate, maintain and terminate a mining operation located in Sections 15, 16, 21, 22, T. 1 S., R. 22 E., SLM, as described in their Plan of Operations (Appendix F) with mitigation measures developed through this analysis to protect other resource values. The haul route from the mine would be via FDR 048 to U.S. Highway 191 and then south to Vernal, Utah.

## **B. Alternative B: No Action Alternative**

Section 1502.14(d) of the National Environmental Policy Act (NEPA) requires that the alternatives analysis in the environmental assessment (EA) include a "no action" alternative. Under the "no action" alternative, the Proposed Action would not be implemented and current land use practices would continue.

However, the Forest Service's authority to implement a "No Action" alternative in this case is limited. Under the 1872 Mining Law, the locator has the exclusive right of possession and free and open access to valuable mineral deposits. This alternative will be used as a basis of comparison of impacts for the other alternatives.

## **C. Alternative C: Proposed Action with County Road Haul Route Alternative**

This alternative was developed to reduce heavy truck traffic on U.S. Highway 191. This alternative would be similar to Alternative A in that DG&T would be allowed to develop, operate, maintain, and terminate a mining operation as described in their Plan of Operations (Appendix F) with mitigation measures developed through this analysis to protect other resource values. This alternative proposes to use County Route 2804 as the main access route to Vernal instead of U.S. Highway 191. The route would take mine traffic east from the mine via FDR 048, County Route 2804, south to Vernal, and down 1500 East to U.S. Highway 40. This route would be approximately 2 miles longer than the route in Alternative A.

# **CHAPTER III - AFFECTED ENVIRONMENT**

## **A. Soils**

There are two landtypes within the proposed mine site. Limestone Hills 6A (LH6A) is the most common type with limestone dipslopes of exposed bedrock slopes from 15-30%. The soils were formed in residuum from the limestone bedrock. Depth to bedrock in this landtype ranges from 0 to several feet with the thicker soils occurring in the saddles and draws. The dominant soils are loamy-skeletal, mixed, Typic Argiborolls. They are well drained and occur on moderately sloping to steep lower side slopes and saddle areas. The surface is a very dark gray loam in the upper section and grades to dark brown, gravelly clay loam in the lower section of about 10 inches. The subsoil is a dark brown, very gravelly clay loam and is about 17 inches thick. The pH ranges from neutral to slightly alkaline.

The southwest portion of the proposed mine site is in the Parks Plateau 1 (PP1) landtype. This is a flat to gently rolling plateau covered by mountain brush/ grass communities. Slopes range from 1-25%. These soils formed in residuum from the limestone bedrock. Depth to bedrock can be more than 10 feet except near the exposed limestone slopes. These soils are very similar to the soils in the LH6A landtype. The dominant soil type is fine-loamy mixed Typic Argiborolls. They are well drained. The surface horizon is a dark gray loam in the upper part and grades to a dark brown fine sandy clay loam in the lower part. The subsoil is a dark brown fine sandy clay loam grading to a reddish brown gravelly sandy loam. The pH ranges from neutral to slightly alkaline.

Both landtypes are classified as low surficial and mass erosion hazard. The erosion hazard is low due to low gradients underlain by stable formations, and high surficial rock content.



## **B. Water Quality**

The DG&T proposed limestone mine is located within the Reader Creek subwatershed. This 11,000 acre subwatershed lies within the Little Brush Creek watershed, which drains into the Ashley-Brush Creek sub-basin. The Reader Creek subwatershed will be the analysis area for determining water resource effects. The analysis will be at the subwatershed level since the maximum proposed project area of disturbance is 80 acres over the life of the project, with five acres of active disturbance at any given time is relatively small in comparison to the acreage of the subwatershed.

### **Watershed Characteristics**

As noted on the previous page under "Soils", the proposed mine is located on the LH6 and the PP1 landtypes. The geologic parent material at the mine site is composed of limestone with an average slope gradient of 10%. The hydrologic characteristics for both landtypes are very similar. The landtypes are classified as low surficial and mass erosion hazard. The erosion hazard is low due to low gradients underlain by stable formations, and high surficial rock content. Also associated with these two landtypes is the negligible groundwater pollution hazard. There are layers of impermeable bedrock and no indication of a shallow groundwater table.

Elevation of the proposed mine site is approximately 8,100 feet. Average annual precipitation is approximately 15 to 20 inches. Precipitation occurs mostly in the form of snow between November and March, although precipitation from April to October in the form of rainfall occurs slightly less than the total annual snowpack accumulation. Isolated thunderstorms are common during the summer months which will create high intensity, short duration rain events.

### **Water Quality, Beneficial Uses and Impairment**

The Utah Department of Environmental Quality, Division of Water Quality (DEQ-DWQ) have assigned beneficial uses for the Brush Creek watershed (DEQ-DWQ 1998). The beneficial uses within the Watershed include domestic purposes with prior treatment processes, secondary contact recreation (swimming, boating), cold water fisheries, and irrigation. On the Forest, all tributaries to Brush Creek are fully supporting the identified beneficial uses. Off the Forest, the Brush Creek Watershed is fully supporting the four beneficial uses (DEQ-DWQ 1997).

Water quality samples have never been collected along Reader Creek. Therefore, no water quality data is available. During the 1998 field season, observations along Reader Creek showed that stream bank erosion only occurs in isolated areas and adequate riparian vegetation was protecting streambanks. If bank erosion is evident, sedimentation to stream channels will likely increase phosphorus concentrations.

In addition, Reader Creek and its tributaries drain through geologic material and soils composed of calcium carbonate ( $\text{CaCO}_3$ ) limestone. When water interacts with limestone, alkalinity increases. The alkalinity of water is the capacity of that water to neutralize acid. The pH of water determines the relative concentrations of alkalinity. Along the south eastern flank of the Uinta Mountains, pH varies between 6.8 and 8.0, which is considered neutral. Alkalinity is important in a number of ways. High alkalinity concentrations or high pH may render water unsuitable for irrigation and low concentrations (low pH) cause acidic water which is harmful and potentially toxic.

### **Stream Channel Morphology and Riparian Vegetation**

Stream channel morphology and condition are key indicators of hillslope and stream channel responses to past and present management activities within a subwatershed. Reader Creek is the main stream channel within the project area, with two additional ephemeral draws that surround the mine site. Reader Creek is a tributary to Little Brush Creek in Burnt Cabin Gorge. At the mine site, Reader Creek is a first order ephemeral stream then becomes perennial at the confluence of the two ephemeral draws.

During above average precipitation years, Reader Creek is perennial above this confluence and towards Lena Peak.

The majority of Reader Creek is characterized as a gentle gradient stream (less than 2%) that is slightly entrenched, highly sinuous, with a gravel dominated substrate and a well developed floodplain (E4 Rosgen stream type). The streambanks are generally composed of unconsolidated, heterogenous, alluvial materials that are finer than the gravel dominated bed material. Consequently, the channel is susceptible to accelerated bank erosion when disturbed.

Riparian vegetation is dominated by herbaceous species, which primarily include Nebraska Sedge. During low flows, sedges and rushes will cover the entire stream channel, creating a comprehensive vegetative blanket. The vegetation filters sediment and nutrients before flowing into the lower reaches of Reader Creek and Little Brush Creek.

### Water Rights

Numerous instream flow claims exist within the analysis area. These claims are found in the water rights record. These claims are for stock watering use along an entire reach of Reader Creek and its tributaries. All claims are under the Ashley National Forest and are tied to use occurring within the Lena Peak and Diamond Mountain range allotments. Only one known spring has been developed for stock watering use. This spring is located approximately 0.8 miles from the proposed mine site. A pipeline conveys water away from the spring to nearby water troughs. The spring source has been neglected over time by the appearance of unrepaired fences and broken pipe. DG&T proposes to use water from this spring and from a well for their operation. The spring had not been filed on by the Forest Service and is now filed on by DG&T. They propose to use the water for dust abatement and work with the Forest Service so that stock water use continues and riparian vegetation is maintained.

### C. Air Quality

A review of monitoring data collected by the state revealed that there are no air quality monitoring stations in the area. However, the air quality of the region is generally considered very good, with no exceedences of the state and federal ambient air quality standards expected. This is due to the sparse population and the lack of major pollutant sources in the area.

The Prevention of Significant Deterioration (PSD) section of the 1977 Clean Air Act Amendments (40 CFR Part 52.21) classified areas of the country as Class I, II, or III. Class I areas were defined as all International Parks, National Wilderness Areas larger than 5,000 acres, National Memorial Parks larger than 5,000 acres, and National Parks larger than 6,000 acres. All other areas were designated as Class II, but can be redesignated by the state at a later time.

There are no Class I areas in the vicinity of the mining area. The Ashley National Forest is designated as a Class II area. As such, specific increases in sulphur dioxide, nitrogen dioxide, and particulate emissions above a baseline concentration are allowed. This allowed increase is called a PSD increment. Appendix A provides a summary of the state and federal ambient air quality standards and PSD increments for Class I and Class II areas. The only known constant pollutant source in the area is dust generated from traffic on area roads. Occasionally, a prescribed fire may occur.

The Ashley National Forest Forest Plan defines the following goals for the management of the Forest's air quality: 1) Manage for the maintenance of air quality related values and 2) Control and minimize air pollutant impacts from land management activities.

#### **D. Vegetation**

The proposed mine site consists of a slightly northeast-southwest trending ridge which is an outcrop of the Madison Limestone. The ridge is covered with a thin layer of soil and mostly low growing vegetation. Elevation is approximately 8,100 feet. On either side of the ridge are low swales. The vegetative cover in the general area is a mosaic of shrubs, grasses, forbs, and scattered aspen clumps and a few Douglas fir saplings.

The crest is covered mainly with a cover of low sagebrush, possibly *Artemisia nova*, and bluebunch wheatgrass, *Elymus spicatus*. Alder-leaf mountain mahogany and Utah serviceberry are also scattered over the area. The vegetation on the ridge is low probably due to the shallow soils. The low nature of the ridge vegetation may also be related to wind action, wherein the ridge is exposed at least part of each winter season. The adjoining margins of the slopes evidently collect more snow and are more mesic. Here the visually dominant species are Vasey's big sagebrush, alder-leaf mountain mahogany, and Utah serviceberry. Vasey's big sagebrush is also dominant in the swales where it is mixed with western wheatgrass and junegrass. With the exception of scattered plants of common dandelion and goatbeard, the site is essentially free of noxious weeds.

#### **E. Wildlife Habitat and Management Indicator Species**

On October 1, 1997 personnel from H.D. Smith and Associates completed an inventory of the proposed mine site. A list of vertebrate species located on the site and/or adjacent to the study site are listed in Appendix B. Some Sensitive and Management Indicator species do occur and are discussed in greater detail below.

##### **Management Indicator Species**

The site shows signs of livestock grazing and use by both mule deer and Rocky Mountain elk. A host of vertebrate species are known to use or traverse the vegetative habitats present on the site. None, however, are restricted to this habitat or use it for critical reproductive behaviors.

The following fish and wildlife species are the management indicator species for the Ashley National Forest:

- Mule Deer and Elk (big game MIS)
- Northern Goshawk (old growth)
- Golden Eagle (cliffs/rock)
- Sage Grouse (sagebrush)
- White-tailed Ptarmigan (alpine meadows)
- Yellow-bellied Sapsucker and Warbling Vireo (deciduous woodlands)
- Lincoln's Sparrow and Song Sparrow (riparian shrub)
- Cutthroat Trout (aquatic)

Management Indicator species (MIS) can be used to display the effects of management activities. Of the MIS listed above, the project is only likely to influence elk, deer, sage grouse, and cutthroat trout habitats. This is because the habitats associated with the eagle, ptarmigan, sapsucker and vireo, and sparrows do not exist within the project area. Indirect effects of the project (e.g. noise) on deciduous

habitat (adjacent aspen stands) may reduce the use of or cause avoidance of the adjacent area by the Yellow-bellied Sapsucker, Northern Goshawk, and Warbling Vireo.

### Elk and Deer

Within the project area, all of the habitat is classified as High Value Summer Range (UDWR Mapping) for both elk and deer. No Critical or Winter Range exists within the area. The High Value Summer Range is quite extensive and consist of many thousand acres on the north and south slope of the Uintas. Summer range habitat is not limiting.

### Northern Goshawk

This species is a management indicator species and also a Forest sensitive species. Refer to the "Sensitive Species" sections below for a discussion of the current condition of the goshawk within the project area.

### Sage Grouse

Sage grouse populations have declined by at least 17-47% throughout much of its range (Connelly and Braun 1997). Within the project area, all of the habitat is classified as Year Round Range (UDWR mapping). Leks (breeding display sites) tend to be found in relatively open areas rather than in dense sage cover, but are surrounded by sagebrush cover. Numerous leks occur along the southern edge of the forest from Diamond Mountain to Brush Creek. The nearest lek is 4.2 km from the project area, with the next closest being 7.4 km. Braun et al. (1977) specified that Autenrieth found 59 percent of 306 nests on 5 study sites were within 3.2 km of a lek and 73.4 percent were found within 4.8 km of a lek. Nesting typically occurs on average within 1.1 to 6.2 km to the nearest lek (Autenrieth 1981, Wakkinen et al. 1992, Fischer et al. 1993, Hanf et al. 1994). Nesting usually occurs under sagebrush plants in cover 36-79 cm tall and where sagebrush cover is approximately 20-40 percent (Patterson 1952, Klebenow 1969, and Fisher 1994). As discussed in the vegetation section of the EA, a mosaic of sagebrush (low growing), mountain mahogany, and serviceberry make up a majority of the shrub species especially along the ridge where the proposed mining would be concentrated. In the swales adjacent to the ridge, sagebrush is more dominant. Nesting is not likely to occur along the ridge due to the low growth of the sagebrush and the low amount of sagebrush cover. Nesting which may occur is likely to be associated with the increased cover and sagebrush height associated with or near the swales.

Brooding habitat tends to be near nesting areas earlier in the season, while more mesic sites are preferred later in the season. Sage grouse usually move from summer range to winter range in October. They usually utilize habitat in the winter with 6 inches or less of snow accumulation. In the project area, wind action likely exposes the vegetation especially along the ridge at least for a portion of the winter season. Though the project area is high elevation, it does have a southern aspect which in some years would have snow conditions which may allow for some use by wintering sage grouse.

### Colorado River Cutthroat Trout

This species is an aquatic management indicator species and also a Forest sensitive species. Refer to the "Sensitive Species" sections below for a discussion of the current condition of the cutthroat trout within the project area.

## Threatened and Endangered Species

The Endangered Species Act of 1973 (PL 93-205, as amended) requires federal agencies to ensure that any activities they authorize, fund or carry out do not jeopardize the continued existence of any wildlife species federally listed as Threatened or Endangered (Section 7). If a proposed action is likely to jeopardize any listed species, a biological assessment must be prepared and formal consultation with the U.S. Fish and Wildlife Service (USFWS) initiated. The federally listed and proposed/candidate species occurring in Uintah County are shown in Appendix C.

### Threatened and Endangered Mammals and Birds

No species listed under stipulations of the Endangered Species Act of 1973, as amended, occur in the project area, and none are known to occur within the near vicinity.

### Threatened and Endangered Fish

There are no threatened or endangered fish within the project area. There are four endangered fish located in the Green River. The following is a list of these endangered fish:

Colorado pike minnow (*Ptychocheilus lucius*)

Razorback sucker (*Xyrauchen texanus*)

Bonytail chub (*Gila elegans*)

Humpback chub (*Gila cypha*)

While each of the endangered species were once abundant in the Upper Colorado River Basin, they have been declining in numbers and are threatened with extinction from their native habitat. A number of factors account for the current status of these species, ranging from habitat reduction or alteration to introduction of non-native species. The importance of the Green River to the endangered fishes has been established in the recovery program developed by the U.S. Fish and Wildlife Service for each of the endangered fish.

## Sensitive Species

In 1991, the Intermountain Region (Region 4) of the Forest Service published a vertebrate sensitive species list. Species were categorized as being "sensitive" due to current or predicted downward trends in population numbers, and/or available habitat, which raises further concern about long term population viability (Spahr et al. 1991).

In February 1994, Region 4 published an updated list of sensitive species. Four mammalian, five avian, and one fish are categorized as sensitive species on the Ashley National Forest.

The sensitive wildlife and fish species are:

Spotted bat	Great gray owl
Townsend's big-eared bat	Flammulated owl
North American lynx	Northern goshawk
Wolverine	Three-toed woodpecker
Boreal owl	Colorado River cutthroat trout



### Sensitive Mammals and Birds

Based upon the distributions and habitat preferences described in the biological evaluation, the project area represents current or potential habitat for only the following sensitive species: Northern goshawk, Townsend's big-eared bats, and spotted bats.

#### Northern goshawk

Many of the known goshawk nests occurring on the Forest are also found in low and middle elevation forest types. Many of the documented goshawk territories on the Ashley National Forest are associated with lodgepole and aspen cover types. Also, goshawk foraging is strongly linked associated with forests, since the goshawk uses a perch and swoop technique for obtaining prey. The project area does not contain the cover types preferred by goshawk for nesting but may provide some minimal value habitat for foraging.

#### Townsend's big-eared and spotted bats

On the Ashley National Forest, bat mist netting surveys were initiated in 1993. On the Vernal Ranger District, a probable identification of one spotted bat was made. This bat was tentatively identified by its echolocation call, but was not confirmed by a visual observation. Cave surveys have confirmed the presence of Townsend's big-eared bats in two different locations on the Ashley National Forest (Sheep Creek Cave and White Rocks Cave). Both of these caves are located several miles from the area. A site survey for roosting habitat was completed by Smith (1997). Rock out-croppings within the area are not sufficiently fractured to provide roosting sites for bats. The Townsend's big-eared bat is exclusively dependent on mines, caves, and buildings for its roosts and hibernacula. There are no known caves or mines within the study area. The project area is within the known permanent occupied range of both the spotted bat and Townsend's big-eared bat. The spotted bat and Townsend's big-eared bat are associated with a variety of habitat types for foraging.

### Sensitive Fish

Cutthroat trout are the only trout native to Utah, and they historically occurred within all major drainages within the state. The Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*-CRCT) is the subspecies of cutthroat trout which historically occupied the Colorado River drainage of which this project is a part of. These trout occupied Colorado River drainage streams in Utah, Colorado, and Wyoming. Binnes (1977) suggested in 1977 that CRCT occupied less than 1% of their historical habitat. Most of the remaining populations are restricted to small, fragmented headwater drainages. Presently, a total of 25 known CRCT populations occupy approximately 121 stream miles within Utah (Lentsch 1997).

The project area is located in a sixth level hydrologic unit code where the CRCT have been classified as *present-depressed*. Historic accounts identify that CRCT was present in this watershed but have not been located in any numbers for several years (personal communication, Chad Crosby UDWR). The 6th level watershed to the east is where water may be piped from a spring to the project area. The status of the CRCT in this watershed is classified as unknown. In this watershed there were historic but unavailable accounts of CRCT much lower in the watershed. No recent surveys have been completed in either watershed which may be affected by the project. Although there are no CRCT within the project and no known CRCT within Reader Creek or the watershed, it is possible that some scattered CRCT may still occur within the watershed but outside the project area.

## **F. Visual Quality**

The characteristic landscape can be described as ascending ridges and broad valley with benches and deep draws. Vegetation consists of low sagebrush with grasses and forbs. Aspen patches occur along the draws with mixtures of aspen and conifers on the hillsides.

Scenic integrity measures the desirability of a landscape. The scenic integrity in this area is complete and at a moderate level. A complete landscape is one that is void of man's and other unnatural features.

The pastoral view includes allotment fences and an occasional herd of cattle. Deer and elk are common throughout the year.

The mine site would be viewed as middleground from the Diamond Mountain Road (FDR 048) and popular campsites along the road. It is situated in the middle of gradual sloping flat with defined draws on either side.

The desired landscape character is a naturally occurring landscape plateau surrounded by the limestone mountains to the north and east. Under the Landscape Management program, the visual quality objectives are retention and partial retention of landscape character for the area. Activities in areas managed as retention should not be evident to the forest visitor. Any modification to the landscape must repeat the form, line, color and texture of the surrounding landscape. Activities in areas managed as partial retention may be evident to the casual observer, but should remain subordinate to the surrounding landscape. Management activities that take place in these areas may introduce form, line, color, and textures that are infrequent or not found in the characteristic landscape, but these introduced contrasts should remain visually subordinate to the surrounding landscape.

According to the user patterns for this area, there are dispersed campsites along FDR 048 near Reader Creek which are used much of the summer and fall. There is the fishing public who drive past this area to their destinations on Diamond Mountain, and there are the hunters who use most of the area from late summer until the winter snows come. There are no known counts for FDR 048. The number of visitors that would pass the site on a daily basis is estimated to range between 50 and 100 vehicles. During the summer, weekends and holidays would likely average more. The project area would be most visible from the dispersed campsites near Reader Creek.

## **G. Recreation**

Recreation use generally increases on the Diamond Mountain road around mid-May and continues until November. Much of the recreational traffic is related to fishing at Calder Pond, Matt Warner Reservoir, and Crouse Reservoir. Other traffic on the road includes accessing summer homes on private lands to the east and people driving for pleasure. Hunting activities increase in August and continue through November.

People camp along the Diamond Mountain Road in the aspen belt between U.S. Highway 191 and Reader Creek. They bring several trailers and other recreational and livestock vehicles and park as a group at the edge of the aspen. One large dispersed campsite is located near Reader Creek about 0.5 miles from the proposed mine site.

Winter recreation includes snowmobiling FDR 048 and the Diamond Mountain area and cross country skiing from U.S. Highway 191 to the new yurt upslope from the project area. The mining operation is not visible from the yurt but could be from certain portions of the yurt trail.

## **H. Transportation**

There are two general transportation routes from the mine site to Bonanza Power Plant.

The proposed route in Alternative A would take the mine access road 0.75 of a mile to FDR 048, then west on FDR 048 for a distance of 1.8 miles to U. S. Highway 191, and south on 191 for 24.0 miles to Vernal.

At present, FDR 048 is a composite of road features and geometrical elements. It varies from one lane to two and blends several different widths, grades, lengths of curve and radii at various points. Design speed is listed at 20 m.p.h. Forest functional class is "Arterial". The road has been suitable for existing traffic levels, most of which are recreation, range permittee, or private landowner generated. The road surface is a composite of native materials and gravel surface. Used quite heavily for dispersed camping, the aspen areas adjacent to the road have had unrestricted public access and a number of well used multiple sites are served either by old 2-track roads or simply by turning off the road through the bar-ditches at random.

U.S. Highway 191 is a paved, two lane highway constructed to Federal highway standards. The section of this highway north of the Ashley National Forest boundary receives an average of 1,010 vehicles per day. The section of this highway closer to Vernal receives an average of 1,590 vehicles per day. [Figures are total 2-way count by Utah Department of Transportation (UDOT) in 1995].

The alternate route in Alternative C takes the mine access road 0.75 of a mile to FDR 048, then east on FDR 048 for a distance of 2.8 miles to the Forest boundary where FDR 048 turns into County Route 2804, continuing east and south a distance of 29.6 miles to Vernal. The county has not established a weight limit for this route. The county does not have data on traffic numbers for this route, however, Uintah County has estimated an average of 100 vehicles going to the Uintah County Landfill daily.

From Vernal to the Bonanza Power Plant, both routes (although not Forest Service routes) would use the same highway. In summary, both routes would have a combination of gravel and paved roads. The proposed route, Alternative A, would have 2.5 miles of gravel road and 24.0 miles of paved highway to Vernal. The alternate route, Alternative C, would have 12.25 miles of gravel road (2.8 miles on National Forest System lands) and 22 miles of paved highway to Vernal.

The intersection of FDR 048 and U.S. Highway 191 does not meet minimum sight distances for safe ingress and egress for passenger vehicles, recreation vehicles, or large trucks. The existing intersection at U.S. Highway 191 is on a sharp horizontal curve combined with a cresting vertical curve and super elevation. The situation is made more serious when large trucks and recreation vehicles pulling out, turning, slowing down and stopping are entered into the traffic mix. Measured sight distance from the south-west approaching traffic lane of U.S. Highway 191 is roughly 310 feet, and from the north approaching lane only about 300 feet. Posted traffic speed limits are 40 mph both directions, but average travel speeds are probably closer to 45-55 mph, especially from the north. Using a 3% grade factor on wet pavement, American Association of State Highway and Transportation Officials (AASHTO) recommends sight distances for total safe stopping distances are roughly, 307 to 342 feet at 40 mph and 432 to 488 feet at 50 mph.

## **I. Roadless Areas**

### **Roadless Area Review and Evaluation**

In 1979, the National Forest Lands were inventoried for roadless areas. The purpose of the inventory was to identify all lands exhibiting wilderness characteristics which could be considered for inclusion in the National Wilderness Preservation System. As a result of the study the Forest Service recommended 511,000 acres of the High Uinta Mountains for wilderness designation. Congress in the Utah

Wilderness Act of 1984 established 460,000 acres as wilderness and released the balance for Forest Plans to determine the appropriate management direction. The inventory was updated in 1983 and called RARE II as part of the forest planning process.

The proposed mine site is located 1.25 miles south (from the nearest point) of the Pipe Creek/Lena Peak inventoried RARE II area #01006. This 1983 inventoried roadless area is relatively accessible from U.S. Highway 191 and by low standard roads from the west and south. Privately owned lands bordering the east side of the inventoried roadless areas are accessible by low-standard dirt roads. Trails and low standard roads penetrate the roadless area on the west, south, and east sides. The area retains some of its natural integrity and appearance in spite of many years of grazing by livestock. The cleared corridors for the powerlines and pipeline in the northeast corner detract from both natural integrity and apparent naturalness. Opportunities for solitude are limited. The sights and sounds of motorized use on adjacent Highway 191 offer major distractions.

### Travel Plan

The Travel Plan for the Vernal Ranger District shows that the proposed mine site straddles two travel opportunity areas. To the north of the mine site, the area is designated as "Opportunity 1" in which motorized recreation is allowed area wide, with some route designations. The route designation in this area restricts some roads to street legal vehicles only. To the south of the mine site the area is designated as "Opportunity 5" in which vehicles are allowed only on established, pre-existing routes except snowmobiles which are allowed area-wide.

### Current Condition of the Proposed Mine Site Area

As noted above, the proposed mine site is not within an inventoried roadless area. The general area of the proposed mine site is easily accessible. The topography is gently rolling hills and most of the area is open with low sagebrush and grasslands. Many two-track roads have been established within-in and adjacent to the project area, with a density of approximately 2.2 miles of road per square mile. The area is heavily hunted during the fall for big and small game.

The project area is within livestock grazing allotments. Range improvements near the project area consist of fences, cattleguards, and spring developments. There is one range fence within the project area.

There are no wilderness areas designated within the project area, nor nearby. The closest wilderness area, the High Uintas Wilderness, is located 35 miles to the west. The project area has little potential for wilderness designation because of existing facilities and proximity to major roads.

The term "roadless character" generally refers to an area of at least 5,000 acres, that is substantially natural, without development and maintained roads. With the new interim roads policy, roadless is defined as an area that is more than 1,000 acres contiguous and unroaded to a remaining roadless portion of the inventoried roadless areas.

Roadless areas have varying degrees of wilderness characteristics; wilderness is specifically defined in the Wilderness Act of 1964 (P.L. 88-577). Roadless characteristics include: natural integrity, apparent naturalness, remoteness, solitude, special features, and manageability/boundaries.

Natural Integrity - Natural integrity is the extent to which long-term ecological process are intact and operating. Impacts to natural integrity are measured by the presence and magnitude of human-induced change to an area. This change includes physical developments as well as activity in the area.

The area's natural integrity is moderate. The long-term ecological processes are generally in tact and operating. Some integrity in the general area has been lost due to grazing and the addition of fences, cattleguards, ponds and spring developments. A network of unmaintained roads located outside the inventoried roadless area were created through livestock management and hunting activities. These two-track type roads have somewhat disrupted the natural integrity. Dispersed recreation along the aspen groves has also contributed to human induced change in the area.

**Apparent Naturalness** - Apparent naturalness is an indicator of whether an area appears natural to most people who are using the area. It is a measure of importance of visitor's perception of human impacts to the area. There may be some human impact, but it would not be obvious to the casual observer and the area would have the appearance of being affected only by the forces of nature.

The apparent naturalness of the project area is moderate. Evidence of man's activities is common throughout the area. This evidence is primarily associated with livestock grazing activities which began around the turn of the century and dispersed recreation which includes hunting activities which have probably been going on as long but have increased through time with the local population. Powerline construction is also evident in the area. Grazing, hunting, and powerline construction have all contributed to the network of 2-track roads in the area.

**Remoteness** - Remoteness is the perceived condition of being secluded, inaccessible, and "out of the way". Topography, vegetative screening, distance from human impacts, distance from the sights and sounds of man, and difficulty of travel all contribute to remoteness.

The feeling of remoteness is low to moderate within the inventoried roadless area. The feeling of remoteness is low within the actual project area. The general area of the mine site is located on the south facing slope approximately one-half mile from a major collector road. There is heavy dispersed camping along the collector road during the summer months which is even heavier during the fall hunting season. The lack of topography, vegetative screening, distance from human impacts, and the ease of travel all contribute to the lack of feeling remote.

**Solitude** - Solitude is a personal, subjective value defined as isolation from the sights, sounds, and presence of others, and the developments of man. A primitive recreation experience includes the opportunity to experience solitude, a sense of remoteness, closeness to nature, serenity, and spirit of adventure.

Solitude in the inventoried roadless area is low to moderate. Solitude within and surrounding the project area is low. The lack of isolation from the sights, sounds, and presence of others contribute to a lack of solitude most of the warm season. During the winter, after hunting season, some solitude may be found before the heavy snows bring the snowmobilers and some cross country skiers to the area.

**Special Features** - There are no unique features within the project area. However, the surrounding area may be considered special due to its vast groves of aspen which draw campers, hunters, and provide for scenic driving in the fall.

**Manageability/Boundaries** - The project area is not within an inventoried roadless area. It would be difficult to ever manage the project area as roadless due to the existing use patterns, 2-track roads, and proximity to Diamond Mountain Road and U.S. Highway 191.

## CHAPTER IV - ENVIRONMENTAL CONSEQUENCES

### A. Soils

The effects of Alternatives A and C are similar in respect to the soil resource. According to Forest Service Region 4 Soil Quality Standards some soils in the activity areas of a mining operation would be detrimentally impacted for some period of time. A detrimental soil condition occurs when the soil hydrological function and site productivity are adversely affected. Some compaction, rutting, contamination and erosion would occur in varying degrees from the day to day mining activities such as heavy equipment use, truck and other vehicle traffic and oils, gas and other chemicals used in the equipment and mining activities. Some short term detrimental soil effects are to be expected, and the standards allow up to 15% long term effects of the actual activity area. These standards require that at least 85% of the activity area should be in, or returned to, a productive condition at the end of a rehabilitation period for the mining operation.

Mitigation: Stockpiling top soil for future rehabilitation would mitigate some impacts. Safeguards would be required to meet Federal, State, and local requirements in the using and storing oils and equipment fuels to prevent spills and to catch and remove any contaminated material from accidental spills. Soil compaction would be mitigated by loosening these soils through ripping and discing these areas during the reclamation phase. It would be expected that 95 to 100% of the area could be returned to a productive condition through the use of reclamation best management practices (Appendix E) by the end of the reclamation period.

Alternative B would have no effect on the soil resource from mining activities. Vegetation and other ground cover would remain and soils would retain current soil hydrological function and site productivity. No additional soil erosion would be expected.

Mitigation: Reclaim disturbance created from bulk sample removal and temporary road.

### B. Water Quality

Alternatives A and C have similar effects since neither haul route would change the direct and indirect effects that would occur from the mine activities. The plan of operations for mining activities (Appendix F) states that the active area of disturbance would be no larger than five acres at any one time and the mine pit no deeper than seventy feet. This five acre area of disturbance would concentrate water from overland flow during the snowmelt season and during precipitation events. Plus, an estimated 80,000 gallons of water would be used each year during the crushing operation. As water drains and cumulates into the pit, it would mix with the limestone. The chemical composition of the limestone is predominately calcium carbonate ( $\text{CaCO}_3$ ) at 98%, magnesium carbonate at 1%. The remaining 1% is unknown.

In discussion with geologists, it is assumed with the high content of  $\text{CaCO}_3$ , there should be little concern with impairment to both surface and ground water quality (Bilbee and Kolasar, personal communication 1999). Calcium carbonate easily saturates within the water before it would increase in alkalinity or pH. Therefore, the water used during the crushing stage and the additional water the pit would capture, would not decrease the water quality.

Surface water contamination could occur when overland flow drains into the disturbed area and comes in contact with sediment and other mining by-products (hydraulic fluid, oil, etc). Chemicals dissolved in

water would ordinarily move at approximately the same rate as the water, if the chemicals are not too highly reactive with spoil materials. Sediment and chemicals in the water could have an impact to surface and groundwater sources. Infiltration rates are quite variable within Mississippian limestone. The infiltration rates can be high due to extensive fracturing nature of the limestone and from the blasting activities or they can be impermeable from the associated bedrock. With layers of impermeable bedrock and no indication of a shallow groundwater table, contamination to an aquifer is doubtful.

Water quality is a concern along the access road to the mine and along the haul route. Proper road surface drainage is critical in preventing sediment delivery to stream channels. Road rutting, improper drainage crossings and lack of road maintenance would lead to accelerated erosion and resulting sedimentation. Studies have shown that rutted roads can yield from two to four times as much sediment as freshly graded roads (Foltz 1993). The current mine access road utilizes a ridge top and only crosses one ephemeral drainage.

An eighteen inch culvert is designed to be installed at this crossing which should alleviate drainage concerns. With the proposed amount of trucks driving along the access road, proper road surface maintenance would be critical to prevent rutting and overland sheet erosion. With proper maintenance, there should be no direct or indirect effects to water quality from road surface erosion and drainage.

Mitigation: Two sediment detention ponds are proposed to allow for settling of contaminants before the water is released into a stream course. These ponds would prevent any indirect water quality effects from occurring. Two small sediment/evaporation ponds should be constructed, where no water is returned to a stream channel. Appendix E discusses in detail the criteria for location, design, and construction and general operation procedures are explained. Also discussed is the proper methods of reclamation of the ponds. These criteria would assure that no indirect and potential cumulative effects would occur downstream from any potential contaminated surface water. Water within these ponds could also be recycled back into the crushing process and/or used for dust abatement on the roads.

Road drainage could also be a concern along FDR 048. This road receives a considerable volume of traffic during the spring, summer, and fall. Past maintenance has been marginal along this road. Marginal maintenance can increase effects of roads on water quality. Direct or indirect effects can be averted again with proper and frequent road maintenance. If frequent road maintenance is a problem, other mitigation measures such as road surfacing with at least four inches of aggregate would be considered.

Alternative B (no action alternative) would have no direct, indirect on water quality.

Mitigation: Reclaim existing bulk sample disturbance and temporary haul road.

### **C. Air Quality**

Impacts on air quality would be the similar for Alternatives A and C except Alternative C has the potential of creating more dust since mine traffic would be required to use the alternate route which contains more dirt roads than Alternative A.

No emissions of sulphur dioxide or nitrogen dioxide would be expected from the operation. Dust would be the primary pollutant expected to be generated from this proposal. It would be generated at the time of blasting, at the crusher site, and on the unpaved haul roads. Blasting would take place once or twice a year and would cause minor, temporary dust emissions. All mining activities would be required to meet Utah State standards for particulate emissions.

**Mitigation:** Water would be used as the primary controlling agent for dust at the crusher site and on the haul road. A dust palliative, such as magnesium chloride, could also be used on the haul road to minimize dust emissions and reduce the amount of water needed.

**Alternative B** would have no impacts on air quality since no mining activity would take place. A minor short term potential would be present for generating dust from reclamation of the existing bulk sample site.

#### **D. Vegetation**

**Under Alternatives A and C** the impacts on vegetation would be the same. During the life of the mining project there would be parcels of land in various stages of reclamation. The proposal is to have no more than 5 acres of active disturbance at any one time. As one area is mined out and mining begins on another area, the mined out area would be reclaimed. It is expected that it would take approximately 3 years for an area to be fully reclaimed. These areas would be subject to erosion during the period that they were void of vegetation. By disturbing the native vegetation the area would also be susceptible to invasion by noxious and non-native invasive plants. (See Appendix D.)

**Mitigation:** Topsoil and overburden would be stockpiled and revegetated for later use in reclamation. Reclamation would take place concurrently. As an area was mined out and another area disturbed, the mined out area would be reclaimed. Reclaimed areas would be revegetated with native species. The newly revegetated areas would be fenced to keep livestock from damaging the developing vegetation.

The invasion of noxious and nonnative invasive plants can be mitigated through several methods. By accomplishing concurrent reclamation and not allowing disturbed area to lie dormant for long periods of time, erosion and the establishment of noxious weeds would be minimal. A monitoring system, consisting of annual inspection for noxious weeds, and the use of suitable control methods can also keep noxious weeds from going to seed and spreading. Reclamation, monitoring and control of noxious weeds would be required until final reclamation is accepted by the Forest Service. The probability of long term reclamation success would be good.

**Under Alternative B** disturbances from the previous bulk sample removal would be reclaimed and no further impacts to vegetation would take place. The area would be revegetated with native species. The newly revegetated area would be fenced for approximately 3 years to keep livestock from damaging the developing vegetation. Reclamation, monitoring and control of noxious weeds would be required until final reclamation is accepted by the Forest Service. The probability of long term reclamation success would be good.

**Mitigation:** Reclaim existing disturbance with native species.

#### **E. Wildlife Habitat and Management Indicator Species**

##### **Management Indicator Species**

##### **Elk and Deer**

**Alternatives A and C** - A host of vertebrate species are known to use or traverse the vegetative habitats present on the site. None, however, are restricted to this habitat, use it for critical reproductive behaviors, nor is the habitat so restricted in geographical distribution such that operation of the limestone mine would significantly limit or decrease the current vertebrate populations. The exception might be along the transportation corridor where vehicle/animal collisions might occur, but if transport of materials is restricted to daylight hours this concern would be minimized.



Noise from the mining operation would be appreciable, and could cause some of the animals to move away from the immediate vicinity. This would not cause a serious problem because of the expansive nature of the habitat, the unsaturated and mobile nature of the vertebrate populations, and the tendency of vertebrates to adapt to the noise.

Under Alternative B, disturbances from the previous bulk sample removal would be reclaimed and no further impacts to wildlife habitat or MIS would take place. The area would be revegetated with native species. The newly revegetated area would be fenced for approximately 3 years to keep livestock from damaging the developing vegetation. Reclamation, monitoring and control of noxious weeds would be required until final reclamation is accepted by the Forest Service. The probability of long term reclamation success would be good.

Mitigation: Reclaim existing disturbance.

### Northern Goshawk

This species is a MIS and also a Forest sensitive species. Refer to the "Sensitive Species" section below for a discussion of the environmental consequences of the alternatives on goshawk.

### Sage Grouse

Alternatives A and C - Potential impacts to sage grouse may include the following: The project may reduce sage grouse nesting, brood rearing, and winter habitat. Due to the expansive extent of surrounding habitat, the distance from the lek site (greater percentage of nests within 3.2 km of a lek site), the project size, site characteristics, and the proposed mitigation (reduce impacts to 5 acres at any one time and reestablish native vegetation) impacts would be minimal. No lekking habitat would be impacted by the project.

Under Alternative B, disturbances from the previous bulk sample removal would be reclaimed and no further impacts to wildlife habitat or MIS would take place. The area would be revegetated with native species. The newly revegetated area would be fenced for approximately 3 years to keep livestock from damaging the developing vegetation. Reclamation, monitoring and control of noxious weeds would be required until final reclamation is accepted by the Forest Service. The probability of long term reclamation success would be good.

Mitigation: Reclaim existing disturbance.

### Colorado River Cutthroat Trout

This species is a MIS and also a Forest sensitive species. Refer to the "Sensitive Species" section below for a discussion of the environmental consequences of the alternatives on this trout.

## **Threatened and Endangered Species**

### Threatened and Endangered Mammals and Birds

As noted in Chapter III, no species occur in the project area, and none are known to occur in within the near vicinity; therefore, there would be no effect of any alternative on threatened and endangered mammals or birds.

## Threatened and Endangered Fish

Alternative A and C - The effects of this project are very localized and relatively isolated. The endangered fish in the Green River would not be impacted by this project with the possible exception of water depletions. For several years now the U.S. Fish and Wildlife Service has identified that water depletions from the Upper Colorado River basin were a concern and could have an adverse impact on the endangered river fishes. The U.S. Fish and Wildlife Service has determined that water development projects should be considered as two groups, small projects between 100 acre feet to 3,000 acre-feet average annual depletion and large projects above 3,000 acre-feet. Projects in these categories must pay a one time depletion fee which goes towards the recovery of the endangered river fishes and the large scale projects must also take other actions to avoid adversely affecting the endangered fish. Projects which use less than 100 acre feet annually are exempt from depletion charges and other recovery actions.

This project would fall below 100 acre feet. Although DG&T has requested 4.7 acre feet from the State, water depletions associated with this project are estimated to be around 360,000 gallons annually which is slightly over one acre-foot. Approximately 90,000 gallons would be used in crusher operations and another 270,000 gallons would be used in controlling dust from the project site and roads. The anticipated water depletions are far less than the 100 acre-feet (32,588,904 gallons) which would trigger depletion fees and further recovery efforts. There would be no effect on the endangered river fish as a result of implementing either alternative A or C.

Under Alternative B (No Action), disturbances from the previous bulk sample removal would be reclaimed and no impacts to threatened or endangered fish would take place.

Mitigation: Reclaim existing disturbance.

## **Sensitive Species**

### Sensitive Mammals and Birds

#### Northern goshawk

Alternatives A and C - Potential impacts to goshawk may include the following: Some foraging habitat may be lost. Little information exists on the use of shrub/grass cover types for goshawk foraging. Based on goshawk sightings use is suspected to be very low. Radio-telemetry data displays very few locations within this cover type. These losses are likely to be insignificant compared to the amount of suitable habitat within the surrounding area. In summary, the proposed project may impact individual sensitive species but would not likely result in a trend towards federal listing.

Under Alternative B, disturbances from the previous bulk sample removal would be reclaimed and no further impacts to wildlife habitat or MIS would take place. The area would be revegetated with native species. The newly revegetated area would be fenced for approximately 3 years to keep livestock from damaging the developing vegetation. Reclamation, monitoring and control of noxious weeds would be required until final reclamation is accepted by the Forest Service. The probability of long term reclamation success would be good.

Mitigation: Reclaim existing disturbance.

Townsend's big-eared and spotted bats

Alternatives A and C - Potential impacts to Townsend's big-eared and spotted bats may include the following: Some loss of foraging habitat may occur. These losses are likely to be insignificant compared to the amount of suitable habitat within the surrounding area.

In summary, the proposed project may impact individual sensitive species but would not likely result in a trend towards federal listing.

Mitigation: Topsoil and overburden would be stockpiled and revegetated for later use in reclamation. Reclamation would take place concurrently. As an area was mined out and another area disturbed, the mined out area would be reclaimed. Reclaimed areas would be revegetated with native species. The newly revegetated areas would be fenced for approximately 3 years to keep livestock from damaging the developing vegetation.

Under Alternative B disturbances from the previous bulk sample removal would be reclaimed and no further impacts to wildlife habitat or MIS would take place. The area would be revegetated with native species. The newly revegetated area would be fenced for approximately 3 years to keep livestock from damaging the developing vegetation. Reclamation, monitoring and control of noxious weeds would be required until final reclamation is accepted by the Forest Service. The probability of long term reclamation success would be good.

Mitigation: Reclaim existing disturbance.

### Sensitive Fish

Alternatives A and B - As noted in the water quality sections of this analysis, no adverse affect is anticipated with the mitigation measures which would be put in place and actions such. Measures such as enhancing the size of the culvert on the main road may actually enhance conditions for the CRCT by improving high flow passage and reducing sediments coming from FDR 048. Alternatives A and C would not adversely affect the CRCT and may slightly enhance conditions for this species.

Alternative B - This alternative would have no affect on the CRCT.

### **F. Visual Quality**

Under Alternatives A and C the proposed activities would have some impact on visual quality within one half mile of the mine site. The process proposed would remove topsoil and overburden and stockpile it for later reclamation. The limestone layer would be removed and a man-made ledge or rounded slope would be created where the limestone layer was removed. Since it is a greyish color, it would tend to blend in with the surrounding area, with naturally exposed ledges and limestone outcrops. The topsoil and overburden would then be replaced and reseeded with native plant species. The final grade would follow the same lines and grades as before, except it would be 30 to 70 feet lower in grade than before. This is a similar reclamation process that S F Industries is using nearby at the phosphate mine north of Vernal. The process is working well at that site.

The size and color of the buildings would be of concern from a visual standpoint. The access road to the mine site has been located (when test pit was constructed) and has minimal visual impacts. The road is not readily visible from any sites along FDR 048 or the dispersed campsites along the road. The heaviest impact would be the duration of the project with accompanying equipment and vehicles.

Mitigation: With concurrent reclamation the actual size of the disturbance would be kept small. When mining is completed in one area, mining would start in another area and the first area would be

reclaimed and within three years, look quite natural. Buildings with a low roof profiles and natural colors would be required to reduce the day to day impact on visual quality.

Under Alternative B disturbances from the previous bulk sample removal, including the access road, would be reclaimed and no further impacts to the visual resource would take place. Within three years the area would look quite natural from viewing areas along FDR 048.

Mitigation: Reclaim existing disturbance.

## **G. Recreation**

Under Alternative A the visual impacts, noise, traffic and dust generated by the mining operation would have a direct impact for forest visitors traveling FDR 048 and camping near Reader Creek. The operation would be approximately one-half mile from the dispersed campsite on Reader Creek. At that distance, the visual impacts would be in the middle-ground and the noise would be somewhat muffled. The added traffic on FDR 048 would travel directly past the campsite, having the greatest impact due to added noise and visibility.

The mining activities would also have a direct impact on hunters, primarily during the general rifle deer and elk hunts. The area is heavily hunted and many hunter camps are located in the aspen belt between U.S. Highway 191 and Reader Creek.

The noise levels from the loaded trucks climbing the grade toward U.S. Highway 191 and empty trucks braking downhill as they approach the turnoff to the mine may affect the recreation users camping adjacent to the road.

Mitigation: An additional 15 to 20 vehicles per day would be an increase in the average daily traffic on FDR 048 (see Transportation below). Controlling dust on this section of FDR 048 by use of water and a dust palliative would help control dust from all traffic. Impacts would be mitigated by not allowing mining activities (hauling and processing) on holiday weekends and the opening day of general rifle hunting seasons, unless special approval is received by the Forest Service authorized officer. Impacts would be further mitigated by not allowing hauling activities on weekends unless special approval is received from the Forest Service authorized officer. These actions would mitigate the noise and traffic safety impacts during those more heavily used time periods.

Under Alternative B disturbances from the previous bulk sample removal would be reclaimed and no further impacts to the recreation resource would take place after the reclamation activities are completed. Within three years the area would be returned to its previous condition.

Mitigation: Reclaim existing disturbance using Best Management Practices.

Under Alternative C the visual impacts, noise, traffic and dust generated by the mining operation would have a direct impact for forest visitors traveling FDR 048. The impacts would be similar to those stated in Alternative A except that the haul trucks would turn east and not travel past the dispersed campsites in the aspen belt west of Reader Creek. There would be more dust along this route due to more unpaved roads.

The mining activities would still have a direct impact on hunters, primarily during the general rifle deer and elk hunts. The impacts may be somewhat less since there are fewer campsites along this route.

The noise levels from the loaded trucks climbing the grade toward U.S. Highway 191 and empty trucks braking as they approach the turnoff to the mine may affect the recreation users camping adjacent to the road.

**Mitigation:** An additional 15 to 20 vehicles per day would be a large increase in the average daily traffic on FDR 048. Controlling dust on this section of FDR 048 by use of water and a dust palliative would help control dust from all traffic. Impacts would be mitigated by not allowing mining activities (hauling and processing) on holiday weekends and the opening day of general rifle hunting seasons, unless special approval is received by the Forest Service authorized officer. Impacts would be further mitigated by not allowing hauling activities on weekends unless special approval is received from the Forest Service authorized officer. These actions would mitigate the noise and traffic safety impacts during those more heavily used time periods.

## **H. Transportation**

Under Alternatives A and C - The patterns of use and the physical characteristics of FDR 048 are not compatible with the proposed level of mine development. For Alternatives A and C to meet AASHTO standards, the road would need to be upgraded.

Because of the size and type of trucks used for mining operations, one truck is equivalent to 5 to 7 passenger cars. Although 15 to 20 trucks a day are predicted, the equivalent mine traffic will roughly double existing use because of it is a very different type of use when compared to existing uses.

The road surface of FDR 048 is a composite of native materials and gravel surface. This surface would not hold up to heavy truck traffic unless improved. Adequate depth of surfacing and dust control should also be considered minimal requirements, with an eye to asphalt surfaces if mining activity warrants it.

The DG&T Plan of Operations (Appendix F) indicates the mine access road would be "excavated, rocked, and graveled to an elevation that prevents excessive erosion". This access road should instead be constructed mostly by importing material to build up the surface rather than cutting or sidecasting. The terrain is gently sloping and the cross section of the road should not become a canal to conduct or concentrate runoff. The ridge top location should help minimize actual overland flow interception and avoid to some extent the effects of drifted snow on north and east facing slopes. Adequate cross culverts and proper interception and dispersal of runoff water is needed. The heavy truck traffic would require a built up cross section of durable, densely compacted materials to provide an adequate running surface and perhaps some reject mining debris can be used for this purpose.

**Mitigation:** FDR 048 would be upgraded to a consistent double lane width and provisions made to handle a sizeable component of heavy truck traffic from the mine. Use of the dispersed areas adjacent to the road would be channeled to well located points of access with adequate sight distances, signing, and safety features. Much off-highway vehicle and ATV use occurs in this area and provision would be made to safely accommodate or restrict this type of activity during hauling periods.

As described above, the mine access road would be reconstructed by importing material to build up the surface rather than cutting or sidecasting. The cattleguard located at the intersection of U.S. Highway 191 would also need to be replaced with a double lane cattleguard. The culverts at Reader Creek would need to be replaced with culverts sized to adequately handle the flow of water and protect the road surface. Preferably, this culvert would be designed to be able to pass a 100 year flood. This culvert would also be well seated into the substrate and designed not to pose a passage barrier to fish. Replacing the existing culverts would help keep additional sediment from entering Reader Creek during these high flows and would eliminate the need to close the road until repair

work is completed in years of high runoff. Water and/or the use of a dust palliative would be needed for dust abatement.

Under Alternative A, the intersection of FDR 048 with U.S. Highway 191 does not meet minimum sight distances for safe ingress and egress for passenger vehicles, recreation vehicles, or large trucks. The existing intersection at U.S. Highway 191 is on a sharp horizontal curve combined with a cresting vertical curve and super elevation. The situation is made more serious when large trucks and recreation vehicles pulling out, turning, slowing down and stopping are entered into the traffic mix. Measured sight distance from the south-west approaching traffic lane of U.S. Highway 191 is roughly 310 feet, and from the north approaching lane only about 300 feet. Posted traffic speed limits are 40 m.p.h. both directions, but average travel speeds are probably closer to 45-55 m.p.h., especially from the north.

Using a 3% grade factor on wet pavement, AASHTO recommended sight distances for total safe stopping distances are roughly:

40 mph-----307-342 feet.

50 mph-----432-488 feet.

Mitigation: This intersection needs to be brought up to safety standards. There are three (or more) basic options for the site. The options are:

- (1) Relocation of the intersection north up the highway tangent toward the Scenic Byway Visitor Site to a location with better visibility. This is not a preferred option because of the potential impact on the new scenic byway site.
- (2) Reconstruction of the existing intersection to meet geometric requirements, i.e. laying back slopes, changing grades and/or highway curvature, removing visual obstructions, possibly adding turning and deceleration lanes, etc.
- (3) Move the intersection to line up at the point of intersection of U.S. Highway 191 tangents coming from both directions into the curve. Make the main FDR 048 entrance line up with the southernmost tangent, provide a second access to the north and use an island, stop signs and split, double access lanes to channel traffic onto and from U.S. Highway 191.

A more in- depth analysis of the intersection and related features with UDOT would be made to address the safety issues.

Under Alternative B, no road improvements would be made. There would still be a safety concern about the sight distance at the U.S. Highway 191 and FDR 048 intersection. Without the additional large trucks for the mining operations, the safety concern would be minimal.

## **I. Roadless Areas**

As noted under Chapter III Affected Environment, the proposal is not within an inventoried roadless area. However, the proposal could have an indirect impact to the inventoried roadless area located 1.25 miles north of the project area or direct impacts to the perception of roadless characteristics within and surrounding the project area.

None of the alternatives would jeopardize the project area's potential for wilderness designation. As noted in Chapter III, this area has little to no potential to be managed as roadless or wilderness because of existing use patterns and facilities within and surrounding the project area.

The discussion on impacts within this section will focus on the following six characteristics: natural integrity, apparent naturalness, remoteness, solitude, special features, and manageability/boundaries.

#### Alternatives A and C

These alternatives would not prevent the inventoried roadless area from becoming wilderness in the future but may have some indirect effect on the characteristics discussed below.

Natural Integrity - Impacts to natural integrity are measured by the presence and magnitude of human-induced change to an area. The long-term ecological processes would remain intact within the inventoried roadless area. The project area itself, although outside the inventoried roadless area, would lose some natural integrity with the construction of the mine and associated facilities. The natural integrity of the portions of the project area activity being mine would be low while the surrounding area would be higher. Once the mine is closed for good and rehabilitated, the area would regain its integrity over time. The loss of integrity from improving the Diamond Mountain Road would be negligible since the existing road is already a high standard gravel road.

Apparent Naturalness - The apparent naturalness of the roadless area would not change. Evidence of man's activities outside of the roadless area (within the project area) would change the apparent naturalness within the project area during mining operations and the early stages of rehabilitation. This change would occur on the five acres that would be actively mined plus any acreage rehabilitated after activities but not fully recovered. No new roads would be constructed beyond what was constructed for the test pit. Only the slightest decrease in apparent naturalness would be anticipated from the improvements made on the Diamond Mountain Road to U.S. Highway 191.

Remoteness - The feeling of being remote within the roadless area may decrease during the times when blasting occurs at the mine. The sounds of explosives and heavy trucks may be heard from within the southern portions of the inventoried roadless area. Sounds of the heavy trucks may be difficult to distinguish from the sounds from U.S. Highway 191 (a major north/south route for semi- and log trucks and recreation traffic). Recreationists and hunters that frequent the roadless area would most likely notice the increased noise from traffic and blasting while those unfamiliar with the area would most likely only notice the blasting. Within the project area, there would be no feeling of remoteness until the mine closes and is rehabilitated. Even after rehabilitation, the feeling of remoteness would most likely be low, the same as its current level.

Solitude - Solitude within the roadless area, project area, and surrounding area would decrease. The sights, sounds, and presence of others related to the mine would contribute to a lack of solitude. Those who do recreate in the area would hear blasting, haul and water trucks, and other mining operations within the general area. The existing level of solitude within the area is low and most recreationists looking for solitude would most likely not choose this area despite the mining proposal.

Special Features - This proposal would not alter the aspen groves that may be considered special by campers, hunters, and other recreationists but may alter the user experience based on the characteristics listed above.

Manageability/Boundaries - The proposal would not effect the manageability or boundary of the roadless area.

The mitigation measures under **Recreation** would greatly reduce the impact of the mining activities on the characteristics above by limiting activities and reducing noise on weekends, holidays, and some hunting seasons.

Under Alternative B there would be no changes beyond the current situation since no additional disturbances would occur.

Mitigation: Reclaim existing disturbance.

## **CHAPTER V - CUMULATIVE IMPACTS**

The proposed project incorporates environmental protection measures intended to reduce, minimize, or avoid impacts on the environment. Mitigation measures are listed in Chapter IV.

This chapter identifies cumulative impacts as the incremental effect to specific resource areas that would occur from implementation of the Proposed Action in conjunction with impact from other past, ongoing, recently approved, and reasonable foreseeable future actions.

While much of this discussion focuses on cumulative adverse impacts, it should be noted that beneficial cumulative impacts would also occur. For example, beneficial cumulative impacts would include additional employment opportunities in the area and the power plant being able to cut operating costs due to the development of a limestone source closer to their operations.

### **A. Soils**

Currently, there are few other land disturbing activities in the area of the mine site. Soil disturbances resulting from construction of the project components total 80 acres over a 35 year period, with up to 5 acres of active disturbance at any one time. As such, the contribution of soil disturbance from the proposed action would have little effect on cumulative soil impacts in the area, and the increase would not be significant. Even so, the cumulative disturbance to soils would be minimized with conscientious application and monitoring of measures described in Chapter IV. None of the alternatives have the potential to provide for cumulative impacts on soils.

### **B. Water Quality**

The cumulative effects are described as the effects on water quality within the Reader Creek Subwatershed. Past and current management actions that have affected stream water quality include roads, grazing and dispersed recreation. Road construction activities can alter water quantity, which leads to changes in water yield and potential stream bank erosion. The lack of proper road maintenance also leads to accelerated erosion from the road surface and can contribute sediment to stream channels. Cattle grazing can impair water quality when over grazing occurs within riparian areas. Dispersed recreation in the form of camping, ATV usage and hunting have developed numerous non-system roads, which cause increases in erosion and sedimentation.

Future activities within Reader Creek include the inevitable increase in dispersed recreation, possible paving of FDR 048, cattle grazing, and small salvage timber sales from National Forest System lands.

Alternatives A and C would not cumulatively effect the water quality of Reader Creek through either an increase in sediment or a change in water alkalinity. By completing the proposed mitigation measures, water would be contained at all times at the mine site and not drain into any active stream course. In addition, with adequate road maintenance, there would be no additional sedimentation added to Reader Creek and its tributaries.

Alternative B (No Action) would not cumulatively effect the water quality of the Reader Creek Subwatershed.



### **C. Air Quality**

The air impacts prompted by the DG&T proposal would add to the existing air quality impacts already caused by pollutant sources currently located in the area. Other impacts to air quality in the area include recreation and grazing activities and controlled burning. Recreation, grazing and other activities would impact air quality through vehicle emissions and generation of dust on unpaved roads. Controlled burns would yield a large amount of particulates and carbon-based emissions (CO, CO<sub>2</sub>), but due to the temporary nature of these burns, the impacts to the airshed would be minimal.

Under Alternative A and C, impacts would be in the form of dust being generated by the crushing and hauling operations added to dust from existing activities. Particulate impacts from the operational aspects of the Proposed Action would not affect the attainment of Class II National Ambient Air Quality Standards (NAAQS) in the area.

Mitigation: Water would be used as the primary controlling agent for dust at the crusher site and on the haul road. A dust palliative, such as magnesium chloride, could also be used on the haul road to minimize dust emissions and reduce the amount of water needed. These mitigation measures would also mitigate dust emissions from existing uses on the haul road.

Alternative B (No Action) would not cumulatively effect the air quality within or surrounding the project area.

### **D. Vegetation**

Alternatives A and C - Implementation would not significantly add to the cumulative impact of vegetation disturbance and removal in the area. The other vegetation disturbing activities are fire, grazing, dispersed recreation, and the development of 2-track roads in the area. Although there are other activities within the general area, there are few vegetative disturbances. With the assigned mitigation in Chapter IV, no significant cumulative impacts are expected as related to vegetation and noxious weeds.

Mitigation: Reclaim areas quickly and apply measures described in Chapter IV.

Alternative B (No Action) would not cumulatively effect vegetation within or surrounding the project area.

### **E. Wildlife Habitat and Management Indicator Species**

#### **Mammals and Birds**

Currently, there are few other land disturbing activities on or adjacent to the mine site. The primary other potential impact to wildlife habitat is livestock grazing. The allotment vegetation is in good condition. Due to the small nature of the proposed disturbance compared to the expansiveness of the habitat in the area. No significant cumulative impacts are expected to occur to wildlife habitat or management indicator species.

#### **Fish**

While considering the past, present, and foreseeable future projects in or near the project area there would be no adverse cumulative effects resulting from implementing this project which would affect the, endangered, threatened, or sensitive species in the project area.

Alternative B (No Action) would not cumulatively effect wildlife habitat or MIS within or surrounding the project area.

## **F. Visual Quality**

No other activities are under consideration for the area which would result in visual impacts. No significant cumulative impacts are expected to occur to visual quality.

Alternative B (No Action) would not cumulatively effect the visual quality within or surrounding the project area.

## **G. Recreation**

No other activities are under consideration for the area which would result in impacts to recreation. Due to population growth, an increase in recreation use could be expected over the life of the mine over the entire forest. No significant cumulative impacts are expected to occur to recreation from any of the alternatives. None of the alternatives would impact recreation use opportunities of the area.

## **H. Transportation**

The minimal amount of road construction needed for this project (0.75 miles of new construction) would not be a significant contribution to the cumulative effect occurring to the transportation system in that area.

The make-up of the present traffic using FDR 048 consists of forest users (hunters, fishers, campers, sightseers, permittees), landowners and ranchers living east of the forest boundary, and vehicles from the fish hatchery located east of the forest boundary.

Under Alternatives A and C, the proposed mining activity would add 15-20 vehicle trips daily to the existing traffic. FDR 048 is designed as a single lane road. The additional traffic, size of vehicles and loads would create safety concerns. The present road width and maintenance is not adequate for safe passing, considering the size, weight, and amount of traffic.

Mitigation: The effects of additional traffic on FDR 048 would be mitigated by widening the section of road used for hauling to a double lane road and increasing the maintenance interval.

Under Alternative B there would be no cumulative effects related to this project.

## **I. Roadless Areas**

### **Alternatives A and C**

There are no proposals to designate the project or surrounding area (which includes the inventoried roadless area to the north) as "wilderness". When considering the past, present, and future activities, this proposal falls in sync with the other land-use activities (livestock grazing improvements, motorized dispersed recreation, recent construction of ski yurt, etc) and would not cause the area to lose its potential for wilderness.

As noted under Chapter III Affected Environment, the proposal is not within an inventoried roadless area. However, the proposal could have an indirect cumulative impact to the inventoried roadless area located 1.25 miles north of the project area.

Natural Integrity - Natural integrity refers to more direct effects related to physical developments in the roadless area. Neither action alternative would have a direct effect or cumulatively add to the presence and magnitude of human-induced change within the inventoried roadless area. The project area itself, although outside the inventoried roadless area, would lose some integrity but would not be considered

significant when considering the past, present, and future activities. This determination is based on the current and expected use of the area and the mitigation that provides for the mine to only mine five acres at one time.

**Apparent Naturalness** - Apparent naturalness is an indicator of whether an area appears natural to most people who are using the area. Alternatives A and C would not singularly or cumulatively add to the decrease of natural appearance of the roadless area. This is because the proposal is outside the roadless area. When considering the natural appearance of the project area, both alternatives would increase the evidence of man's activities. When considering cumulative effects, this project does not add significantly because the project area would be kept to 5 acres of active disturbance. This type of activity would be within the range of the other types of uses in the area.

**Remoteness** - Remoteness is the perceived condition of being secluded. Most of the activities related to these alternatives would go un-noticed by the people in the roadless area. Blasting may be heard from within the roadless area but most other mining sounds (generator, pump, and small vehicular traffic) would not contribute to the sounds from other activities in a significant way. The project area itself is outside the inventoried roadless area and already has a minimal feeling of being remote. Because of the existing level of remoteness, both action alternatives would not significantly effect remoteness in the project area when considering the other activities and the amount of recreation use in the area.

**Solitude** - Solitude is a personal and subjective value defined as the isolation from the sights, sounds, and presence of others and developments. Like remoteness, the proposed activity may indirectly decrease the solitude within the southern portion of the inventoried roadless area because of the noise associated with blasting and heavy equipment. Neither action alternatives are anticipated to significantly decrease solitude within the roadless area because of the vegetation cover between the project area and the roadless area boundary, and the type of ongoing activities in the general project area (motorized recreation and the recent yurt construction). The project area itself is outside the inventoried roadless area and already has a minimal feeling of solitude especially during the warm season. Because of the existing level of solitude, both alternatives would not add significantly to the existing effect to solitude in the project area when considering the other activities and the amount of recreation use in the area.

**Special Features** - Special features are the unique geological, biological, ecological, cultural, or scenic features located in a roadless area. This proposal is outside of the inventoried roadless area. The vast aspen groves near the project area are considered special primarily by recreationists. There are no known past, present, or future projects within the aspen groves surrounding the project area. Therefore, the action alternatives do not cumulatively effect the aspen groves.

**Manageability/Boundaries** - This criteria relates to the ability to manage an area to meet the size criteria for wilderness and maintain the five elements discussed above. This project is outside of the inventoried roadless area. The current condition of the land (as noted in Chapter III - Affected Environment) and current use patterns would make the project area nearly impossible to manage as a wilderness. Impossible to the point that this project in addition to other activities would not decrease the manageability or change the boundaries of an area that would be manageable. Therefore, there would be no cumulative effect from this proposal.

## **Alternative B**

Although there are no proposals to designate the project or surrounding area as "wilderness", this alternative would maintain wilderness and roadless characteristics better than the action alternatives. This Alternative would not decrease the area's potential for wilderness designation.

**Natural Integrity** - Natural integrity refers to more direct effects related to physical developments in the roadless area. This alternative would not have a direct effect or cumulatively add to the presence and

magnitude of human-induced change within the inventoried roadless area. The project area itself, although outside the inventoried roadless area, would lose some integrity during the rehabilitation phase of the test pit and road but would not be considered significant when considering the past, present, and future activities. This determination is based on the current and expected use of the area and the consideration that rehabilitating the pit and road would improve the long-term natural integrity of the project area.

**Apparent Naturalness** - Apparent naturalness is an indicator of whether an area appears natural to most people who are using the area. Alternative B would not decrease the natural appearance of the roadless area. This is because the proposal is outside of the roadless area. When considering the natural appearance of the project area, the alternative would increase the evidence of man's activities in the short-term until the road and test pit are rehabilitated. When considering cumulative effects, this alternative would not add significantly because the existing test pit and road would be closed and rehabilitated.

**Remoteness** - Remoteness is the perceived condition of being secluded. Heavy equipment used to close and rehabilitate the test pit and road may be heard from within the roadless area but the sounds would be difficult to tell from the heavy traffic on US Highway 191 and would also be short-term (until the rehab work is completed). The project area itself is outside the inventoried roadless area and already has a minimal feeling of being remote. Because of the existing level of remoteness, the proposed rehabilitation measures for this alternative would not add significantly to the existing effect on remoteness when considering the other activities and the amount of recreationists use in the area.

**Solitude** - Solitude is a personal and subjective value defined as the isolation from the sights, sounds, and presence of others and developments. Like remoteness, this alternative may indirectly decrease the solitude within the southern portion of the inventoried roadless area because of the noise associated with the heavy equipment necessary for rehabilitation of the test pit and road. This alternative is not anticipated to significantly decrease solitude within the roadless area because of the vegetation cover between the project area and the roadless area boundary, and the type of ongoing activities in the general project area (motorized recreation and the recent yurt construction). The project area itself is outside the inventoried roadless area and already has a minimal feeling of solitude especially during the warm season when recreation use is high. Because of the existing level of solitude, this alternative would not decrease solitude when considering the other activities and the amount of recreation use in the area. In the long-term, this alternative may slightly increase solitude but it is unlikely most people would notice the pit was rehabilitated

**Special Features** - Special features are the unique geological, biological, ecological, cultural, or scenic features located in a roadless area. This proposal is outside of the inventoried roadless area. The vast aspen groves near the project area are considered special primarily by recreationists. There are no known past, present, or future projects within the aspen groves surrounding the project area. Therefore, the action alternatives do not cumulatively effect the aspen groves.

**Manageability/Boundaries** - This criteria relates to the ability to manage an area to meet the size criteria for wilderness and maintain the five elements discussed above. This project is outside of the inventoried roadless area. The current condition of the land (as noted in Chapter 3 - Affected Environment) and current use patterns would make the project area nearly impossible to manage as a wilderness. Impossible to the point that this project in addition to other activities would not decrease the manageability or change the boundaries of an area that would be manageable. Therefore, there would be no cumulative effect from this proposal.

## CHAPTER VI - CONSULTATION AND COORDINATION

### A. List of Contacts

The mailing list of individuals and groups contacted during scoping is located in the project file located at the Ashley National Forest Supervisor's Office in Vernal Utah. The following groups and individuals provided comment:

#### Government Offices

- Uintah County Commissioners
- Uintah County Planning Office
- Utah Department of Natural Resources
- Utah Department of Wildlife Resources
- Utah Department of Transportation
- Utah State Historic Preservation Office
- Vernal Area Chamber of Commerce

#### Industry

- Deseret Generation & Transmission

#### Groups

- The Ecology Center, Inc.
- Wild Utah Forest Campaign

#### Individuals

- Joleen Bell

### B. List of Preparers

The following list identifies the Forest Service Interdisciplinary Team and consultants that were involved in the preparation of this EA.

#### Forest Service Interdisciplinary Team

##### NAME

Chauncie H. Todd

##### RESPONSIBILITY

Team Leader - Minerals/Lands

Stephanie Morelan	NEPA
Don Marchant	Civil Engineering
Brent Hanchett	Landscape Architect/Recreation
Chris Savage	Hydrology
Steve Blatt	Wildlife

### Consultants

<u>NAME</u>	<u>AFFILIATION</u>	<u>RESPONSIBILITY</u>
Byron Loosle, Ph.D	Forest Service	Cultural Resources
Sherel Goodrich	Forest Service	Ecology
Darlene Koerner	Forest Service	Soils
Earl Kerns	Forest Service	Range Management
Diane Augustus	Forest Service	Public Relations
Doris Perry	Forest Service	Accounting
Steve Phillips	Forest Service	Fisheries
Sue Ann Bilby, Ph.D	Uinta Paleontological Associates	Paleontology
V. Garth Norman	Archeological Research Consultants	Archeology
Stanley L. Welsh, Ph.D.	Endangered Plant Studies, Inc.	TES Plants
H. Duane Smith, Ph.D.	H. D. Smith & Associates	TES Animals

## **CHAPTER VII - LITERATURE CITED**

### Water Quality

Foltz, Randy B. 1993. Sediment processes in wheel ruts on unsurfaced forest roads. University of Idaho. 177p. Dissertation.

Utah Department of Environmental Quality, Division of Water Quality. 1998. Standards of quality for waters of the state. R317-2, Utah Administrative Code.

Division of Water Quality, Department of Environmental Quality. 1997. Uinta watershed management unit stream assessment. 40p.

### Wildlife Habitat and Management Indicator Species

(Mammals and Birds)

Autenrieth, R. E. 1981. Sage grouse management in Idaho. Wildlife Bulletin Number 9. Idaho Department of Fish and Game. Boise. 239 pp.

Braun C. E., T. Britt, and R. O. Wallestad. 1977. Guidelines for maintenance of sage grouse habitats. Wildlife Society Bulletin : 5:99-106.

Connelly, J. W. and C. E. Braun. 1997. Long-term changes in sage grouse Centrocercus urophasianus populations in western North America. *Wildlife Biology* 3:123-128.

Hanf, J. M., P. A. Schmidt, and E. B. Groshens. 1994. Sage grouse in the high desert of central Oregon. U.S. Department of Interior, Bureau of Land Management. Series P-SG-01. Prineville, Or. 56 pp.

Klebenow, D. A. 1969. Sage grouse nesting and brood habitat in Idaho. *Journal of Wildlife Management*. 33:649-661.

Patterson, R. L. 1952. The sage grouse in Wyoming. Sage Books, Inc. Denver, CO. 341 pp.

Wakkinen, W. L., K. P. Reese, and J. W. Connelly. 1992. Sage grouse nest locations in relation to leks. *Journal of Wildlife Management* 56:381-383.

#### (Fish)

Binns, N.A. 1977. Present Status of Indigenous Populations of Cutthroat Trout, (*Salmo clarki*), in Southwestern Wyoming. Wyoming Game and Fish Department, Cheyenne, Wyoming. Fisheries Technical Bulletin 2.

Final Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin; USDI Fish and Wildlife Service, Region 6, Denver, Colorado, September 29, 1987.

Intra-Service Section 7 Consultation for Elimination of Fees for Water Depletions of 100 acre-feet or less from the Upper Colorado River Basin; USDI Fish and Wildlife Service, Region 6, Denver, Colorado, March 9, 1995.

Lentsch, Leo and Yvette Converse. March 1997. Conservation Agreement and Strategy for Colorado River Cutthroat Trout in the State of Utah; Publication Number 97-20; Utah Division of Wildlife Resources, Salt Lake City, Utah.

Section 7 Consultation, Sufficient Progress, and Historic Projects Agreement and Recovery Action Plan; Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin; USDI Fish and Wildlife Service, Region 6, Denver, Colorado, October 15, 1993.

#### Transportation

AASHTO "A Policy on Geometric Design of Rural Highways, 1965" and "A Policy on Geometric Design of Highways and Streets, 1984".

## **APPENDIX A**

# **SUMMARY OF STATE AND FEDERAL AMBIENT AIR QUALITY STANDARDS AND PSD INCREMENTS FOR CRITICAL POLLUTANTS**



## APPENDIX A

### SUMMARY OF STATE AND FEDERAL AMBIENT AIR QUALITY STANDARDS AND PSD INCREMENTS FOR CRITICAL POLLUTANTS (micrograms per cubic meter, ug/m3)

#### DG&T Limestone Mine EA

Pollutant(1)	Averaging Period	State and Federal Standards(2)		PSD Increments	
		Primary	Secondary	Class I	Class II
Particulate Matter (PM 10)	Annual	50	NA	NA	NA
	24-Hour	150	NA	NA	NA
Total Suspended Particulates (TSP)	Annual	NA	NA	5	19
	24-Hour	NA	NA	10	37
Sulfur Dioxide (SO2)	Annual	80	NA	2	20
	24-Hour	365	NA	5	91
	3-Hour	1,300	NA	25	512
Carbon Monoxide (CO)	8-Hour	10,000	10,000	NA	NA
Nitrogen Dioxide (NO2)	Annual	100	NA	2.5	2.5
Lead (Pb)	3-Month	1.5	NA	1.5	1.5
Ozone (O3)	1-Hour	235	NA	235	235

(1) Gaseous concentrations are corrected to a reference temperature of 25 degrees Celsius and to a reference pressure of 760 millimeters of mercury.

(2) All maximum values are not to be exceeded more than once per year and ozone standard is not to be exceeded more than one day per year.

NA Not applicable

Source: US Congress (1977, 1988)

## **APPENDIX B**

### **Non Listed Vertebrate Species Located On And/Or Adjacent To The Study Site**

H.D. Smith & Associates, October 30, 1997

## APPENDIX B

### Non Listed Vertebrate Species Located On And/Or Adjacent To The Study Site

H.D. Smith & Associates, October 30, 1997

#### Birds:

<i>Cathartes aura</i> Turkey Vulture	<i>Zenaida macroura</i> Mourning Dove	<i>Salpinctes obsoletus</i> Rock Wren
<i>Aquila chrysaetos</i> Golden Eagle	<i>Bubo virginianus</i> Great Horned Owl	<i>Oreoscoptes montanus</i> Sage Thrasher
<i>Lanius ludovicianus</i> Loggerhead Shrike	<i>Sturnella neglecta</i> Western Meadowlark	<i>Calamospiza melanocorys</i> Lark Bunting
<i>Chondestes grammacus</i> Lark Sparrow	<i>Amphispiza belli</i> Sage Sparrow	<i>Spizella breweri</i> Brewer's Sparrow
<i>Sayornis saya</i> Aay's Phoebe	<i>Pica pica</i> Black-billed Magpie	<i>Gymnorhinus cyanocephalus</i> Pinon Jay
<i>Psaltiriparus minimus</i> Common Bushtit	<i>Carpodacus mexicanus</i> House Finch	<i>Chordeiles minor</i> Common Nighthawk
<i>Colaptes auratus</i> Common Flicker	<i>Turdus migratorius</i> American Robin	<i>Carduelis tristis</i> American Goldfinch
<i>Falco sparverius</i> American Kestrel	<i>Sialia currucoides</i> Mountain Bluebird	<i>Buteo jamaicensis</i> Red-tailed Hawk

*Troglodytes aedon*  
House Wren

*Dendroica petechia*  
Yellow Warbler

*Pipilo erythrophthalmus*  
Rufous-sided Towhee

**Mammals:**

*Sorex obscurus*  
Dusky Shrew

*Myotis lucifigus*  
Little Brown Bat

*Myotis evotis*  
Long-eared Myotis

*Myotis volans*  
Long-legged Myotis

*Myotis ciliolabrum*  
Small-footed Myotis

*Lasionycteris noctivigans*  
Silver-haired bat

*Eptesicus fuscus*  
Big Brown Bat

*Lasiurus cinereus*  
Hoary Bat

*Ursus americanus*  
Black Bear

*Taxidea taxus*  
Badger

*Mephitis mephitis*  
Striped Skunk

*Canis latrans*  
Coyote

*Vulpes vulpes*  
Red Fox

*Procyon lotor*  
Raccoon

*Urocyon cinereoargenteus*  
Gray Fox

*Felis concolor*  
Mountain Lion

*Lynx rufus*  
Bobcat

*Marmota flaviventris*  
Yellow-bellied Marmot

*Citellus variegatus*  
Rock Squirrel

*Eutamias minimus*  
Least Chipmunk

*Apermophilus lateralis*  
Golden-mantled Ground Squirrel

*Eutamias dorsalis*  
Cliff Chipmunk

*Tamiasciurus hudsonicus*  
Red Squirrel

*Spermophilus tridecemlineatus*  
Thirteen-lined Ground Squirrel

*Thomomys bottae*  
Valley Pocket Gopher

*Perognathus parvus*  
Great Basin Pocket Mouse

*Peromyscus maniculatus*  
Deer Mouse

*Peromyscus truei*

Pinyon Mouse

*Neotoma cinerea*

Bushy-tail Woodrat

*Microtus montanus*

Mountain Vole

*Microtus longicaudus*

Longtail Vole

*Erethizon dorsatum*

Porcupine

*Sylvilagus nattalli*

Mountain Cottontail

*Lepus townsendi*

White-tail Jackrabbit

*Lepus americanus*

Snowshoe Hare

*Odocoileus hemionus*

Mule Deer

*Alces alces*

Moose

*Cervus canadensis*

Elk

#### **Reptiles and Amphibians:**

*Sceleoporus graciosus*

Sagebrush Lizard

*Urosaurus ornatus*

Tree Lizard

*Coluber constrictor*

Racer

*Pituophis melanoleucus*

Gopher Snake

*Crotalus viridis*

Western Rattlesnake

*Tamnophis elegans*

Western Terrestrial Garter Snake

## **APPENDIX C**

# **Potential Endangered, Threatened, and Sensitive Vertebrate Species Occupying Uintah County, Utah**

H.D. Smith & Associates, October 30, 1997

## APPENDIX C

### Potential Endangered, Threatened, and Sensitive Vertebrate Species Occupying Uintah County, Utah

H.D. Smith & Associates, October 30, 1997

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Threatened
Peregrine Falcon	<i>Falco peregrinus</i>	Endangered
Whooping Crane	<i>Grus americanus</i>	Endangered
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	Threatened
Black-footed Ferret	<i>Mustela nigripes</i>	Sensitive
Spotted Bat	<i>Euderma maculatum</i>	Sensitive
North American Lynx	<i>Felix lyns canadensis</i>	Sensitive
Wolverine	<i>Gulo gulo</i>	Sensitive
Western Big-eared Bat	<i>Plecotus townsendii</i>	Sensitive
Boreal Owl	<i>Aedolius funereus</i>	Sensitive
Flamulated Owl	<i>Otus flammeolus</i>	Sensitive
Northern Goshawk	<i>Accipiter gentilis</i>	Sensitive
Northern Three-toed Woodpecker	<i>Picoides tridactytus</i>	Sensitive
Great Gray Owl	<i>Strix nebulosa</i>	Sensitive
Colorado Cutthroat Trout	<i>Oncorhynchus clarki pleruiticus</i>	Sensitive

## **APPENDIX D**

### **NOXIOUS WEEDS**



## APPENDIX D

### NOXIOUS WEEDS

Experience at the phosphate mining operation along Highway 191 and roadsides and timber harvest in the Diamond Mountain and Brush Creek Mountain areas the following noxious weeds can be expected to invade disturbance associated with this proposed operation.

Musk thistle (*Carduus nutans*) is highly likely to enter the site within the first few years of disturbance. The plant with highly mobile wind-blown seeds has been found a numerous sites within a few miles of the proposed operation. This plant thrives on disturbance.

Scotts thistle (*Onopordum acanthum*) is known from along Highway 191 in the vicinity of the phosphate mine operation. It has also been found on lands disturbed at the phosphate mine. This plant also has highly mobile, wind-blown seed.

Spotted knapweed (*Centaurea maculosa*) is known from along Highway 191 in the vicinity of the phosphate mine operation. It has also been found on lands disturbed at the phosphate mine. Seeds of this plant are dispersed only a short distance by wind. However, it has spread rapidly across Utah and other parts of the west along roadsides where the principal agent of spread is vehicles. With vehicular activity, this plant has, at least, moderate potential to infest roadsides and other disturbed lands associated with the proposed action.

Russian knapweed (*Centurea repens*) is known from many locations along Highway 191 and along other roadsides. Like spotted knapweed, this plant does not have highly mobile wind-blown seed, but the seeds are commonly spread long distances by vehicles. Thus road sides and other disturbed areas frequented by vehicles have high risk of infestation by this plant.

Other noxious weeds of apparent less risk to the site that are known in the Uinta Mountains-Uinta Basin area include: dyers woad (*Isatis tinctoria*), dalmation toadflax (*Linaria dalmatica*), broadleaf pepperweed (*Lepidium latifolium*), and whitetop (*Cardaria draba*). These plants appear to present lower risk because of distance of proposed operation from known infestations of these plants or the lack of rapid spread of these plants at elevations and similar habitats as found at the proposed operation. However, any of these or other plants listed by Utah Department of Agriculture as noxious weeds could have potential to spread to the proposed mine site where they could rapidly spread with disturbance associated with mining.

Early detection is essential to effective control of these noxious weeds. If infestations are found when they consist of 1 or few plants, they can be eradicated at comparatively low cost. If they are allowed to spread they become increasingly difficult and expensive to eradicate or even contain. A weed specialist or botanist trained in weed identification should inspect the site at least annually in the growing season.

Timely and appropriate treatment are needed to eradicate noxious weed infestations. Infestations need to be treated each year before they go to seed. Some infestations may require more than one treatment each year to prevent formation of seeds. Manual control can be effective for tap-rooted species and perhaps small infestations of some rhizomatous species. However, chemical control can be expected to be most effective for some rhizomatous species and especially if the size of the infestation exceeds more than a few stems.

Locations of noxious weed infestations should be plotted on large scale maps by species. An ongoing inventory should be kept of each infestation that includes number of plants and/or size of the infestation and actions taken to eradicate or control the plant. Location maps and inventory data should be updated annually. Without such maps and inventory data, early detection will be of less value, and timely and appropriate treatment much less likely.

## **APPENDIX E**

# **BEST MANAGEMENT PRACTICES RECLAMATION FOR DESERET GENERATION AND TRANSMISSION**

## **APPENDIX E**

### **RECLAMATION BEST MANAGEMENT PRACTICES FOR DESERET GENERATION AND TRANSMISSION**

The proposed mining operation would encompass two different phases of reclamation. The first phase would be done concurrently with mining activities. Deseret Generation and Transmission's proposal is to limit active disturbance to five acres at any one time. As disturbance increases beyond five acres, at least one acre would be reclaimed for every additional acre disturbed. However, the Forest Service would consider newly reclaimed lands as "disturbed" until vegetation is completely established and propagates naturally. The second phase for reclamation would be closeout reclamation and this would occur when all mining activities cease. Mitigation measures for both reclamation phases are listed below and during which phase they would be implemented.

Also included with this reclamation plan is a detailed description on settling/evaporation ponds. Criteria on location, design, and construction and general operation procedures are explained. Also discussed is the proper reclamation methods of the ponds.

#### ***CONCURRENT RECLAMATION***

Concurrent reclamation would involve ongoing rehabilitation treatments during the activity of the mine. Areas recently reclaimed would be inspected and approved by the Forest Service before new acreage is mined. It is crucial that vegetation becomes well established for successful reclamation. There are numerous best management practices (BMP's) used to achieve a high success rate.

Described below are guidelines and recommendations for land shaping, topsoiling, seedbed preparation, general planting and seeding specifications, and mulch and fertilizer use. The information contained here would be implemented during the reclamation phase.

#### **Land Shaping**

The first facet in land shaping is to construct stable slopes to establish vegetation, which would reduce erosion and sedimentation. The topography should be sloped to a configuration that would allow for natural drainage to existing stream courses and blend with the surrounding undisturbed terrain. The surface should be suitable for applying topsoil or other material suitable for plant growth.

Vegetation is rarely established on slopes steeper than 2:1 or 50%. Slopes should only be this steep if the natural terrain or some other limitation prohibits further reduction. Vegetation establishment begins on slopes at 3:1 or even flatter. Slopes 3:1 or flatter can be worked with wheeled equipment and seedbed preparation and planting can be easily controlled.

Slope stability is a function of soil particle size, shape and distribution; slope length; climate; and moisture. Irregularity should be considered with slope lengths and gradients. One continuous 3:1 slope should not occur, but rather a slope that changes between convex to concave and back again would prevent erosion.

## **Topsoiling**

Topsoiling is the placement of topsoil or other suitable plant growth material over a prepared subsoil. Its purpose is to provide a suitable soil medium for vegetative growth. Topsoil should be a loam consisting of varying proportions of organic matter, clay, silt, and sand. It should be free weeds and inorganic debris. In most mining operations, the top six to twelve inches of soil is stockpiled as topsoil. At the Diamond Mountain mine site, the topsoil is quite shallow. All available topsoil should be stockpiled and saved for reclamation purposes.

Care must be taken when applying topsoil so it is not placed on top of a subsoil of contrasting texture. This can cause the topsoil to slough if water flows between the topsoil and the subsoil. The following BMP's should be applied when replacing topsoil.

- The existing grade of the subsoil should be maintained.
- Topsoil should be uniformly distributed at a minimum compaction of four inches on slopes graded 3:1 or steeper. It should reach a depth of six inches on slopes flatter than 3:1.
- Topsoil should not be applied when the subsoil is frozen or extremely wet.
- The operator should plan on a reduction in soil volume between salvage, stockpiling, and replacement activities. This volume loss could be as much as thirty percent.

## **Seedbed Preparation**

Seedbed preparation entails preparing the soil by either ripping, disking, scarifying, and adding soil amendments to make the soil more productive and enhance revegetation efforts. Seed germination and seedling establishment are enhanced by loosening the surface of the soil by hand or machine raking prior to planting and then covering the seeds by raking or scarifying the soil to a depth of 1/4 to 1/2 inch. Good seed germination and establishment is also obtained by seeding on one to six inches of snow.

Seedbed preparation including weed control and soil tillage are essential for successful sowing and the establishment of seedlings. Weeds must be controlled by mechanical means or by spraying. Good seedbed preparation may be difficult to achieve at the Diamond Mountain mine site due to shallow soils. Areas to be seeded should be ripped or scarified, to a minimum depth of three inches. The soil should be worked to establish suitable conditions in which the seeding equipment can be operated.

Before the seedbed is prepared, any concentrated flow of offsite water should be diverted from the area by using appropriate measures to prevent erosion. The area to be planted should be reasonably smooth and free of rills and gullies to provide the best possible soil conditions for seeding.

The seedbed should be firm so that the seed is not planted too deep or in loose soil. Generally the seedbed is greatly improved by having a noncompetitive mulch cover to reduce retain soil moisture, reduce surface drying, soil crusting, and erosion during establishment.

## **General Planting and Seeding Specifications**

- The following seed mix is approved for use in reclamation. Any change would have to be approved by the District Ranger.

<u>Common Name</u>	<u>Scientific name</u>	<u>Lbs/acre</u>
Bluebunch wheatgrass <sup>1</sup>	<i>Agropyron spicatum (Elymus spicatus)</i>	3
Thickspike wheatgrass	<i>Agropyron dasystachyum (E. lanceolatus)</i>	2
Squirreltail	<i>Sitanion hystrix (Elymus elymoides)</i>	1
Needle-and-threadgrass <sup>2</sup>	<i>Stipa comata intermedia</i>	2*
Sandberg bluegrass <sup>3</sup>	<i>Poa secunda</i>	2
Blueleaf aster	<i>Aster glaucodes</i>	0.5*
Blueflax	<i>Linum perenne</i>	1
King yellowflax	<i>Linum kingii</i>	0.2*
Penstemon <sup>4</sup>	<i>Penstemon subglaber, P. strictus, P. humilus, P. eatonii</i>	1
Hooker balsamroot <sup>5</sup>	<i>Balsamorhiza hookerii</i>	0.2*
Bitterbrush	<i>Pershia tridentata</i>	0.2
Mountain big sagebrush	<i>Artemisia tridentata vaseyana pauciflora</i>	0.2
Alderleaf mountain mahogany <sup>6</sup>	<i>Cercocarpus montanus</i>	0.2

<sup>1</sup>Goldar bluebunch wheatgrass if available

<sup>2</sup>*Stipa comata comata* should not be used as a substitute.

<sup>3</sup>Any of a number of phases or cultivars of this plant might be used.

<sup>4</sup>One or any combination of two or more of these.

<sup>5</sup>Arrowleaf balsamroot (*Balsamorhiza sagittata*) should not be substituted.

<sup>6</sup>Seed of this species is expected to be expensive. Rather than seed this in the mix, it might be seeded on the areas where fractured limestone is left neat the surface without much top soil.

\*Seed of these species will not likely be readily available. Use of these species would not be mandatory. Some of the other species listed could be unavailable at times on the market. The seed mix listed above is intended to provide a choice of species from which to make a seed mix based on availability.

In the event that the above seed mix of native species did not result in desired establishment of plant cover, the use of hard fescue (*Festuca trachyphylla* [*Festuca ovina duriscula*]) and crested wheatgrass (*Agropyron cristatum*) at 2-3 lbs/acre would likely improve establishment of plant cover.

- All grass and forb species within the seed mix must have an pure live seed ratio of at least 85%.
- Total seed mix application rate would be at 15 pounds per acre.
- Shrubs should be used to provide long term vegetative stabilization and would protect the soil surface after the grasses and forbs decline. Shrubs chosen should be native and match specific habitats to Diamond Mountain.

- Seeding should either be conducted during the early spring or late fall. Fall seeding is the most successful, especially over one to six inches of snow over freshly scarified soil. Spring seeding is most successful on northern facing exposures. Generally, the greatest potential for seedling failure is from freezing of the young plants prior to establishment.
- When seeding in the spring, moisture conditions may not be adequate for establishment. In this case, the seedlings may not survive dry summer weather.

### **Fertilizer**

Fertilizers should only be required on reclaimed lands if soil tests show that soils are deficient in nutrients. The use of a slow releasing nitrogen provides best results for revegetation and is best adapted to applications during seeding and shrub planting. Excessive or incorrect use of fertilizer can cause more harm than good. Once soil tests are performed, application rates, fertilizer type and N-P-K ratios would be specified by the Forest Service.

### **Mulches**

The application of mulches immediately following seeding and fertilizing should be used on all reclaimed lands. Mulches conserve moisture by reducing evaporation, surface erosion and soil temperatures, while providing soil stability until seedlings are established. Mulches can consist of weed free straw, erosional control blankets, hydromulch or long-fiber wood cellulose. Either the use of erosion control blankets in combination of hydromulching would probably be the most effective along Diamond Mountain. South facing slopes and high winds exist at the mine site and the combination of these two mulches would increase revegetation success.

### **Maintenance of Revegetated Areas**

It is crucial to maintain reclaimed disturbed lands for a few years while vegetation tries to establish. Best management practices that work well include fencing and repairing revegetated areas to help ensure the success of revegetations efforts.

- Fencing would be desired around the entire 80 acre mine site to prevent cattle and wildlife use before the plants become established.
- Repairs would entail reseedling, fertilizing or repairing damage caused by wind and water erosion or damages caused by animals or humans. Damaged sites would need repair as soon as possible after it is noticed.

## **Runoff Collection**

It may be required to capture surface runoff and transport it away from the open mine pit and also newly reclaimed lands. This would prevent water concentrating within the mine pit and reduce rill erosion on unvegetated areas. Best management practices to collect and divert runoff are described below.

- Diversion dike/ditch should be used to route surface waters around structures and away from unvegetated areas. Specifications include a height of 1.5 feet or greater; width of 2.0 feet or greater; side slopes of the dike 2:1 or flatter; compaction should be adequate to ensure a stable dike that will not erode or wash out easily; and grades in excess of 2% may need to be mechanically stabilized with a riprap lining.
- The trench can be constructed by using either heavy equipment or hand tools. The bottom and sides of the ditch should be riprapped with rocks or lined with a geotextile fabric. This would help stabilize the sides of the ditch and reduce sediment loading in the water caused by the bare ditch banks. Dike banks above the water line should be seeded.
- An interceptor trench is a trench built along the contour of a slope to also divert surface runoff. An interceptor trench is smaller and less permanent than a diversion ditch/dike. The trench can have a minimum depth of 12 inches at downslope side, minimum width at bottom of trench of 18 inches and side slopes of the trench of 2:1 or flatter.
- The bottom of the trench should be riprapped with rocks or lined with a geotextile fabric. This would help reduce sediment load in the water caused by the eroding of the ditch banks.
- A recommendation would be to construct diversion ditches above and near the open mine pit and to construct the more temporary interceptor trenches around reclaimed lands. The more permanent diversion ditches would stay in place for years during mining operations and the temporary trenches could be easily removed once vegetation becomes established.

## ***SETTLING/EVAPORATION PONDS***

The purpose of the settling ponds are to allow sediment and contaminated water to settle out or evaporate before reaching a stream course. The impoundments for this project should be designed to allow for evaporation of water. Discharging water from the settling ponds to a stream course requires a National Pollutant Discharge Elimination System (NPDES) Permit issued by the Environmental Protection Agency.

## **Location Criteria**

- Ponds should be located in a geologically stable area, at least fifty feet away from streams or other surface waters.



- Ponds should be kept out of active floodplains. This would eliminate the need for diverting streams around the ponds and would reduce reclamation requirements.
- Place straw bales below ponds to prevent sediment entering near by stream courses.

### **Design Criteria**

- Several settling ponds in series are often preferable to one large pond. Water can be retained for a longer period in multiple ponds, thus allowing sediments more time to settle out before water is discharged. One pond in the series might be the principle sediment trap while another could be used to hold reusable water.
- Ponds should be designed so their length is greater than their width. A 2:1 ratio is adequate, although a 5:1 ratio is preferred. A long length to width ratio helps reduce the velocity of water flowing through the pond, which increases the stability of the embankment. Reduced velocities also enhance the settlement of solids.
- Design the pond so that it is large enough to contain all sediment laden process water as well as seepage, surface runoff, and precipitation from the design storm event. The pond must be large enough to provide a minimum freeboard of three feet at all times. It is beneficial if size constraints conform to the physical configuration of the site.

### **Construction Criteria**

- If the pond cannot be built below ground level, build the pond embankment on clean, stable foundation material. This would help prevent seepage between the embankment and the foundation material. Seepage could cause piping and subsequent failure of the embankment.
- Construct the containment embankment of well compacted, competent soil, free of organic debris.
- A spillway would need to be installed so sediment free water could be decanted. Spillways must be riprapped with a coarse material to prevent erosion of the toe of the dam. Anti-seep collars must be placed around spillways to prevent seepage and eventual washout of the spillway.
- The settling ponds should be completed, ready to use, and all surface flows should be diverted around the pond, before general mining activities commence.

### **Operating Parameters**

- While operating do not fill the pond with solid sediments exceeding 60% of the designed storage volume. If this limit is reached, some of the sediments should be removed and deposited elsewhere or used for reclamation.

- Always maintain at least three feet of freeboard in the ponds. This is especially important during spring runoff, periods of high precipitation, and for non-discharging ponds.
- At the close of the mining season, decant sediment free water onto vegetated ground to allow sufficient freeboard for direct precipitation during seasonal closure. This will help preserve the structural integrity of the pond embankment.
- Chemical flocculents such as alum or lime could be added to settling ponds to reduce the length of time needed to settle out solids.

### **Reclamation Alternatives for Settling Ponds**

- Dewater the pond.
- Remove some or all of the sediments and stabilize them in an approved area. Recontour the entire site and make the perimeter of the pond irregular by adding fill to some sections while removing it from other areas. Seed, fertilize and mulch the recontoured area.
- Another alternative would be to stabilize the sediments in place by putting a cap of coarse material over the fines to a depth of three feet or more. Then recontour the pond to conform as much as possible to the surrounding topography. Replace topsoil and seed.

### ***CLOSEOUT RECLAMATION***

The second phase of reclamation would be closeout reclamation and this would occur when all mining activities cease. By the end of the mining operation most of the disturbed area would have already been reclaimed. At that time, all structures, facilities and equipment would be removed from the site. Unless needed for future use by the Forest Service, the water well would be plugged and capped. The final 5 acres of disturbance, including the sedimentation ponds, would be recontoured, topsoiled and seeded as discussed previously. Fences would be maintained until final reclamation is accepted, at which time the fences would be removed.

Final reclamation standards would be met before bond release. Acceptable ground cover requirements for bond release would be at least 70% of that of an adjacent like area. Ground cover would include live perennial basal herbaceous vegetation, accumulated dead plant litter, and rock fragments over 3/4 inch diameter. Ground cover bond release criteria would be evaluated after the third growing season. Ground cover determination would be by ocular estimate. Plants on the Noxious Weed List (Appendix D) would not be allowed as part of the ground cover determination.

Adequate bonding would be retained to ensure satisfactory results of final reclamation. The Forest Service would retain the mine access road as part of their road system.

## **APPENDIX F**

# **DESERET GENERATION & TRANSMISSION PLAN OF OPERATIONS**

# APPENDIX F

USDA, Forest Service

FS-2800-5 (7/95)  
OMB NO. 0596-0022  
EXPIRES: 07/31/98

## PLAN OF OPERATIONS FOR MINING ACTIVITIES ON NATIONAL FOREST LANDS

Submitted by Jerry Hascall Operations Superintendent 6/25/98  
Signature Title Date  
Plan Received by Brad C. Lott District Ranger 6/29/98  
Signature Title Date

### I. GENERAL INFORMATION

- A. Name of Mine/Project Deseret Generation & Transmission, Diamond Mountain Resources Limestone Mine
- B. Type of Operation Lode, development and production  
(lode, placer, mill, exploration, development, production, other)
- C. Is this a (new) continuing operation? (CIRCLE ONE)  
If continuing a previous operation, this plan (replaces/modifies) a previous plan of operation. (CIRCLE ONE).
- D. Proposed start-up date of operation October 1, 1998
- E. Proposed duration of operations October 1, 1998 through October 31, 2035
- F. Proposed seasonal reclamation close-out
- G. Expected date for completion of all reclamation. One year after closing of the mine

### II. PRINCIPALS

- A. Name, address and phone number of operator  
Deseret Generation & Transmission  
12500 East 25500 South  
Vernal, Utah 84078-8525
- B. Name, address, and phone number of authorized field representative (if other than the operator). Attach authorization to act on behalf of operator.  
Jerry Hascall  
Operations Superintendent  
Deseret Generation & Transmission, Bonanza Power Plant  
12500 East 25500 South  
Vernal, Utah 84078-8525  
Phone number (435) 781-5702



C. List the owners of the claims (if other than the operator)

Deseret Generation & Transmission, Lynn W. Mitton, Soren K. Sorensen, J. Edward Thatcher,  
Philip Tice, Rose Milne, Debra Horrocks, Richard Brady

(If more space is needed to fill out a block of information, use additional sheets and attach to form.)

D. List names and address of any other lessees, assigns, agents, etc. and briefly describe their involvement with the operation, if applicable:

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### III. PROPERTY OR AREA

Name of claim, if applicable, and the legal land description where the operation will be conducted.

MC#	Name	Section	Township	Range
<u>UMC 363617</u>	<u>Diamond Mountain Resources #9</u>	<u>SE ¼ Sec 16</u>	<u>T. 1 South</u>	<u>R. 22 East</u>
<u>UMC363618</u>	<u>Diamond Mountain Resources #10</u>	<u>SW ¼ Sec 15</u>	<u>T. 1 South</u>	<u>R. 22 East</u>
<u>UMC 363624</u>	<u>Diamond Mountain Resources #16</u>	<u>NE ¼ Sec 21</u>	<u>T. 1 South</u>	<u>R. 22 East</u>
<u>UMC 363602</u>	<u>Diamond Mountain Resources #17</u>	<u>NW ¼ Sec 22</u>	<u>T. 1 South</u>	<u>R. 22 East</u>

### IV. DESCRIPTION OF THE OPERATION

A. Access. Show on a map (USGS quadrangle map or a National Forest map, for example) the claim boundaries if applicable, and all access needs such as roads and trails, on and off the claim. Specify which Forest Service roads will be used, where maintenance or reconstruction is proposed, and where new construction is necessary. For new construction, include construction specifications such as widths, grades, etc., location and size of culverts, describe maintenance plans, and the type and size of vehicles and equipment that will use the access routes.

Beginning at the intersection of Forest Road 048 and State Hwy 191, a double pass heavy-duty cattle guard will be installed. At approximately ¼ mile intervals there will be slow moving vehicle turnouts installed on Forest Road 048 from State Hwy 191 to the turn off for the access road to the mine site. This is approximately 1.3 miles. At the point where Forest Road 048 crosses Reader Creek an additional 36-inch culvert will be installed and the grade of the existing road raised 18 inches. All work will be completed to Forest Service standards. Forest Road 048 from the mine site access road to State Hwy 191 will be maintained in a safe travel condition during all times that the mine is in production in any year. Forest Road 048 will be watered as needed to abate any excessive fugitive emissions that are caused by mine truck traffic. Truck crossing, truck entering roadway, and other traffic safety signs will be posted as directed by the Forest Service.

The mine access road will be constructed from Forest Road 048 to the mine site using the existing road that was the access during the bulk sample phase of the project. This road will be excavated, rocked, and graveled to an elevation that prevents any excessive erosion. There will be a bar ditch on each side of the road to control water run off. There will be an eighteen-inch



culvert installed where the access road runs parallel to north pasture fence and across the drainage. Approximately one hundred yards north of the intersection of Forest Road 048 and the mine access road there will be a cattle guard installed to eliminate the need to open and close gates on the mine access road.

**B. Map, Sketch or Drawing.** Show location and layout of the area of operation. Identify any streams, creeks or springs if known. Show the size and kind of surface disturbances such as trenches, pits, settling ponds, stream channels and run-off diversions, waste dumps, drill pads, timber disposal or clearance, etc. Include sizes, capacities, acreage, amounts, locations, materials involved, etc.

Approximately four thousand feet north by northeast is an old spring that had been developed by the Forest Service. This spring was used to feed several stock watering troughs. We propose to redevelop this spring and to be able to use the water for dust abatement. The excess water would be held in a buried storage tank. The extra water would be used to water stock and for held in reserve for possible fire fighting needs. We have filed for a water right on the spring for 4.7 acre feet. We expect the water needs to be about 13 gpm. The tank would be located adjacent to East Side of the mine pit. There will be one or two sediment ponds of about a quarter acre in size constructed to catch and retain any sediment that may escape the mine pit during inclement weather. The field fence separating pasture six and seven currently runs through the center section of the beginning portion of the mine. It is our proposal to relocate the fence so that it goes around the mine site to the north.

All streams will be highlighted in blue. All Sediment ponds will be highlighted in brown. All fences will be highlighted in black X's.

There will be a pit maintenance area to the East Side of the pit.

(If more space is needed to fill out a block of information, use additional sheets and attach to form.)

**C. Project Description.** Describe all aspects of the operation: how clearing will be accomplished, topsoil stockpiled, waste rock placement, tailings disposal, etc. Calculate production rates and total volumes of waste rock and ore. Include justification and calculations for settling pond capacities and, the size of runoff diversion channels.

**1. For first 12 months:**

The mine site is a bare open ridge with some sagebrush and native grasses that sparsely cover the area. The topsoil varies in depth from a few inches to six feet. The topsoil will be removed and stockpiled on site at a depth of no greater than two feet for later reclamation. All topsoil will be seeded annually until needed for reclamation. Waste rock will be kept on site to be used in road construction, lime chips, and later reclamation. In the first year of operation approximately sixty thousand tons of crushed limestone will be delivered to the Bonanza Power Plant. There will be twelve thousand ton of waste material the first year. The pit will be shot in thirty five foot lifts. The first year of operation will see approximately three acres of disturbance. We plan to drill and blast as needed to support the crushing activity. The drilling and blasting phases should last only two to three weeks each. The most likely times will be in May to June and this year would be in October.

**2. For total life of project:**

It is intended to limit the amount of disturbance to five acres at any one time. As the mine develops and the disturbance increases to an area of four acres, at least one acre will be reclaimed for every additional acre disturbed. The stock watering pond will hold about three acre-feet of water and will be sufficient to use for dust abatement. At the present time the production of the mine will fluctuate as to the Power Plant's needs and may see on site activity every other year. However, we anticipate mining activity every year. Should mining activity stop for any period of longer duration the mine site will receive remedial reclamation to cover the planed mine outage. All slopes will be left at no greater than two to one if the mine is not in operation. No slope will have a height of greater than seventy feet overall, in two thirty five foot lifts. Over the life of the mine it should produce one million three hundred thousand tons of crushed limestone. The mine will produce two hundred sixty thousand tons of waste rock during the life of the mine. This material will either be used for reclamation or for various projects as a market is developed for it.

(If more space is needed to fill out a block of information, use additional sheets and attach to form.)



**D. Equipment and Vehicles.** Describe that which is proposed for use in your operation (Examples: drill, dozer, wash plant, mill, etc.). Include: sizes, capacity, frequency of use, etc. During the initial construction of the access road a D8 dozer, road grader, dump trucks, belly dumps, front end loader, and a water truck will be used. During the mining operation an air track drill, excavator, dozer, water truck, crusher, dump trucks, belly dump trucks, front-end loader, and pickups will be used. The crusher will be used for one hundred twenty days per year and will have the capacity to crush one hundred fifty tons per hour. The excavator or front ends loader will be onsite to load trucks and to groom the pit as needed. This may be up to two hundred forty days per year. The D8 dozer, water truck and the road grader will be used as needed to maintain the roads and for reclamation. The water truck will have a capacity of no less than two thousand gallons. Their use will be intermittent during mining operations. This may be as much as two hundred forty days per year or as little as thirty days per year. There will be no mine or trucking activity on holidays or opening weekends of hunting seasons for rifle elk and deer. There will be no mine or truck activity during the times of the year when significant road damage or erosion may be caused by such activity.

**E. Structures.** Include information about fixed or portable structures or facilities planned for the operation. Show their locations on the map. Include such things as living quarters, storage sheds, mill buildings, thickener tanks, fuel storage, powder magazines, pipe lines, water diversions, trailer, sanitation facilities including sewage disposal, etc. Include justification and calculations for sizing of tanks, pipelines and water diversions.

There will be a portable tool and storage shed with dimensions of ten feet by forty feet on site during mining operations. This shed will be removed at the end of each season.

There will be a chemical toilet onsite during all onsite activity and will be serviced by a local sanitation company. It will be removed at the end of each season.

The equipment will either be fueled by a fuel truck each day or be fueled onsite from a fuel storage tank. This tank will have a capacity of no greater than one thousand gallons. The ground around the tank will be lined and buried so that and spill or leak will be contained, allowing no discharge outside the fueling area. The fuel tank will be removed and the end of each season.

The only powder magazine storage on site will limited to the blasting phase each year. This magazine will be maintained by a licensed contractor and removed upon completion of the blasting each year.

## **V. ENVIRONMENTAL PROTECTION MEASURES (SEE CFR 228.8)**

**A. Air Quality.** Describe measures proposed to minimize impacts on air quality such as obtaining a burning permit for slash disposal or dust abatement on roads.

The measures used to minimize the impacts on air quality will deal primarily with roads, disturbed surfaces, and blasting of the pit.

The mining contractor or Deseret will obtain a permit for particulate dust emissions from the State of Utah. We will follow State of Utah regulation R307-12-5 for Mining Activities.

The following are the regulations that apply to this application:

5B. Any person who owns or operates a mining operation shall minimize fugitive dust as an integral part of the site preparation, mining activities, and reclamation operations.

5C. The fugitive dust control measures to be used may include, but are not limited to:

(1) periodic watering of unpaved roads,



- (2) chemical stabilization of unpaved roads,
  - (3) paving of roads,
  - (4) prompt removal of coal, rock minerals, soil, and other dust-forming debris from the roads and frequent scraping and compaction of unpaved roads to stabilize the road surface,
  - (5) restricting the speed of vehicles in and around the mining operation,
  - (6) revegetating, mulching, or otherwise stabilizing the surface of all areas adjoining roads the are a source of fugitive dust,
  - (7) restricting the travel of vehicles on other than established roads,
  - (8) Enclosing, covering, watering, or otherwise treating loaded haul trucks and/or railroad cars, to minimize loss of material to wind and spillage,
  - (9) minimizing the area of disturbed land,
  - (10) prompt revegetation of regraded lands,
  - (11) planting of special windbreak vegetation at critical points in the permit area,
  - (12) control of dust from drilling, using water sprays, hoods, dust collectors or other controls approved by the executive secretary,
  - (13) restricting the areas to be blasted at any one time,
  - (14) reducing the period of time between initially disturbing the soil and revegetating or other surface stabilization,
  - (15) reducing the fugitive dust at spoil and coal transfer and loading points,
- These are examples of how fugitive dust will be controlled.

(If more space is needed to fill out a block of information, use additional sheets and attach to form.)

**B. Water Quality.** State how applicable state and federal water quality standards will be met. Describe what measures or management practices will be used to minimize water quality impacts and meet applicable standards.

1. State whether water is to be used in the operation, and if so, how. If water is used in the operation (processing ore, washing ore, solution make-up, etc.) state how the water will be stored, treated and disposed of. If ponds of any type are proposed, such as for storage or settling, state how they will be designed and built. Provide storage capacities. State how ponds will be maintained on an annual basis.

2. Describe methods to control erosion and surface water runoff from all disturbed areas, including waste and tailings dumps.

3. Describe proposed surface water and ground water quality monitoring, if required, to demonstrate compliance with federal or state water quality standards.

4. Describe the measures to be used to minimize potential water quality impacts during seasonal closures, or for a temporary cessation of operations.

5. If land application is proposed for waste water disposal, the location and operation of the land application system must be described. Also describe how vegetation, soil, and surface and groundwater quality will be protected if land application is used.

1. Water will be used in the operation for dust abatement on the roads; mine pit and during crushing operations required by state and federal standards. The water will be stored in a underground storage tank.

At the present time all water runs off the ridge into two drainages that empty into Reader Creek. There will be two settling ponds constructed of native materials in such a manner as to hold one and one half-acre feet each. The pond at the higher elevation will retain any sediment from the mine pit and the lower elevation pond will retain any left over sediment before allowing water to flow naturally down the drainage.

2. There will be two primary areas to control erosion and surface runoff. The first is the access road. The road will be constructed with bar ditches and water bars to direct any surface water caused by rain or snow melt to an appropriate area to limit erosion and damage to the road.

The mine surface operation is of the open pit type and should contain any runoff experienced.

3. The mine contains primarily limestone and any water runoff would not create hazard to the water shed. However there will be eight bore holes drilled to monitor and sediments and the water quality on the west and East Side of the mine site. These boreholes will be drilled to a depth of eighty feet. The monitoring will be done on a semi-annual basis. These results will be reported to the Forest Service and any other agency as appropriate.

4. Monitoring the boreholes will continue during all phases of the life of the mine. Any time the TDS or other samples from the boreholes become a concern the Forest Service will be notified.



C. Solid Wastes. State whether the proposed operations will produce tailings, dumpage, or other waste, and if so, what types of waste and their estimated quantities. State how tailings, dumpage, or other waste produced by operations will be disposed of or treated so as to minimize adverse impacts upon the environment and forest surface resources.

In the mining process there will be a fifteen to twenty percent waste stream of limestone and native soil that is of a substandard quality and will not be shipped to the power plant. This material is suitable for road chips, road base, railroad ballast, riprap, and other construction material. Unless a market is developed for these materials they would be used for reclamation. The waste material that is saleable would be sold FOB the pit. We would pay the Forest Service a fee for this material. This would be the standard rate as determined by the Forest Service. We would propose that rate to be twenty cents per ton or thirty cents per yard.

D. Scenic Values. State how scenic values will be protected (such as screening, slash disposal, timely reclamation, etc.).

During the life of the mine there will be some reclamation work every year, as the pit grows to an area large enough to start reclaiming. The disturbed surfaces will be seeded and graded to a contour that minimizes the scenic impact. The mine access road is placed on the backbone of a ridge to the east of the mine site to minimize visual impact of truck traffic. The location of the claims are located below the timberline and on an open ridge so that there will be minimal disturbance to the area. It should be note that this site also has the highest grade of limestone located within our claims. By limiting mine activity on holidays and opening weekend of hunting seasons the visual impact to the public will be minimized.

(If more space is needed to fill out a block of information, use additional sheets and attach to form.)

**E. Fish and Wildlife.** Describe practicable measures to maintain and protect fisheries and wildlife, and their habitat (includes threatened, endangered, and sensitive species) affected by the operations.

No threatened, endangered, or sensitive species occur within the project area.

By controlling the fugitive dust and water runoff from the mine site impacts on fisheries and wild life and their habitat will be minimized. Controlling vehicle access, speed, crushing times, and hauling time the impact to wild life will be minimized.

**F. Cultural Resources.** Describe measures for protecting known historic and archeological values.

An extensive survey of the mine site, and access road was conducted. An old sheep camp was located that does not embody distinctive characteristics relative to registry for NRHP per 36 CFR 60.4 Criteria C. There are no other known archaeological or historic sites located in or near the survey area.

The measures proposed to protect historic or archeological values include the following:

1. Mine site construction activity and traffic will be confined to the area surveyed,
2. Operations and construction personnel will refrain from collecting or otherwise disturbing and cultural remains that may be encountered during development.
3. The Forest Service will be notified and construction activity ceases if buried cultural remains are encountered during construction or mining activity. Work will not resume until authorized by the Forest Service.

**G. Hazardous Substances.**

1. List all substances including cyanide by name and quantity, which you intend to use or generate during the proposed operation.

There will no hazardous materials generated on site.

During the blasting phase of the mining operation there will be an ammonium nitrate mixture on site. This material will be controlled by a licensed explosive technician and will be removed from the mine site when the blasting phase is completed. There will also be fuel oil on site. It is not expected to be more than one thousand gallons at a time.

2. Describe generation, handling, storage, disposal, security (fencing), identification (signing/labeling), or other special operations requirements for substances necessary to conduct the proposed operation.

Any and all explosives will be stored in an MSHA approved storage container while on site. A licensed technician will handle the explosives.

The fuel oil will be stored in a fuel tank and all fueling will take place on a fuel pad designed to contain any spill. All servicing of equipment will take place on a maintenance pad designed to prevent any contamination from getting into the soil.

(If more space is needed to fill out a block of information, use additional sheets and attach to form.)



2. Describe the measure that will be taken if a release of a reportable quantity of a hazardous material does occur.  
As defined in 40 CFR Part 112 Deseret is required to develop and maintain a SPCC Plan primarily because:
- The mine site is proximate to a "navigable water" of the United States;
  - Above -ground fuel-oil storage tanks exceed 660 gallons in capacity and,
  - A SPCC Plan is an integral part of Deseret's objective of implementing "Best Management Practices" with regard to protecting the environment.

A copy of the SPCC plan will be maintained at the mine site when occupied and be available for EPA, Utah Bureau of Water Pollution Control, Utah Bureau of Solid and Hazardous Waste, and the Forest Service on-site inspection during normal working hours.

Any contractors working at the mine site must have an approved SPCC Plan.

#### Steps to take at the site of a spill

1. Do not smoke; where practical extinguish other open flames (torches, space heaters, etc.) and safely turn off electrical power to motors, welding machines, power tools, etc.
2. Avoid unnecessary contact with spilled oil or chemicals. Don protective clothing (boots, gloves, goggles, or suits) if necessary.
3. Determine the source and, if possible, the identification of the spilled oil or chemical.
4. If oil or chemical is still spilling, take action to stop or slow the flow from the source (i.e. close valves, plug holes, etc.) and contain the spilled material if possible. Only trained personnel should do this.
5. Determine the direction of the flow and the extent of the spill, and (if possible) a rough estimate of the amount of oil or chemical spilled.
6. Notify the Bonanza Power Plant at 781-5750 or 781-5751; ask for the Shift Supervisor. He is the Incident Commander for all emergency situations. He will notify the Chemical Supervisor (Hazmat Coordinator) or the Loss Control Coordinator (Assistant Hazmat Coordinator) for instructions regarding safe control, cleanup and disposal of the spilled material. The Shift Supervisor will notify the Environmental Supervisor and the District Ranger of the Forest Service..
7. The Environmental Supervisor is responsible to :
  - a. Provide assistance to the Incident Commander and the Hazmat Coordinator as required.
  - b. Ensure compliance with the applicable environmental regulations during the cleanup effort through coordination with the Incident Commander, the Hazmat Coordinator, the Loss Control Coordinator, and the Hazmat Team.
  - c. Notify the appropriate federal and state agencies.
8. Complete an incident report within 24 hours of the initial discovery of the spill. Incident reports will be kept on file by the Chemical Supervisor, the Loss Control Supervisor, and the Administrative Assistant. A copy of the incident report will be sent to the District Ranger of the Forest Service.

**H. Closeout Reclamation.** Describe such items as: (1) the removal of structures and facilities including bridges and culverts, (2) new construction prior to reclamation, (3) a revegetation plan, (4) permanent containment of mine tailings, waste, or sludge's which pose a threat of a release into the environment, (5) closing ponds associated with the operations and eliminating any standing water, (6) a final surface shaping plan, and (7) post operations monitoring and maintenance plan.

1. The removal of all structures and facilities including culverts will be completed within two years after final closure of the mine.
2. N/A
3. The revegetation plan will consists of:
  - a. A detailed summary of all lands disturbed and not yet reclaimed during the normal mining process will be submitted to the Forest Service for its approval.
  - b. The Forest Service will provide the seed specifications to Deseret G & T.
  - c. The revegetation schedule will be completed within two years of final closure.
  - d. The mine site will be monitored for two additional growing seasons to ensure an acceptable coverage of vegetation has occurred.
4. Mine tailings, waste rock and any sludge from the sediment ponds will be spread over the floor of the mine pit and allowed to dry and then covered with available overburden.
5. All sediment ponds will be reclaimed to a natural grade and standing water eliminated.
6. The final surface shaping of the mine, which may include eighty acres, will have a northeast to southwest slope. The south end of the pit floor will slope toward the two drainages to eliminate standing water in the pit. The north, east and west side to the pit will have mild slopes no to exceed three to one. The access road will be reclaimed to a natural grade. Another option would to leave the mine access road open for public use as directed by the Forest Service.
7. Post operations monitoring will consist of semi-annual data collection from each of the boreholes to ensure no ground water contamination for a period of three years. All data and summary analysis will be forwarded to the Forest Service on an annual basis. A semi-annual meeting to discuss concerns and action plan for any potential problem areas will be scheduled each May and November with the Forest Service for a period of three years.

## **VI. FOREST SERVICE EVALUATION OF PLAN OF OPERATIONS**

### **A. Recommended Changes/Modifications for Plan of Operations:**

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**B. Bond-** As a further guarantee of faithful performance with the terms and conditions listed below, and with reclamation requirements agreed upon in the plan of operations, the operator delivers herewith and agrees to maintain at least one of the following forms of financial guarantee:

1. Negotiable Treasury bills and notes which are unconditionally guaranteed as to both principle and interest in an amount equal at their par value to the penal sum of the bond; or
2. Certified or cashier's check, bank draft, Post Office money order, cash, assigned certificate of deposit, assigned savings account, blanket bond, or an irrevocable letter or credit equal to the penal sum of the bond in the sum of \_\_\_\_\_ (\$\_\_\_\_\_).

The bond amount may be adjusted during the term of this approved plan of operations in response to changes in the operation. The bond calculation worksheet is attached.

### TERMS AND CONDITIONS

A. It is understood that this plan of operations has been approved for a period of \_\_\_\_\_ or until \_\_\_\_\_. A new or revised plan must be submitted in accordance with 36 CFR Part 228, Subpart A if operations are to be continued.

B. It is understood that approval of this plan of operations does not constitute: (1) certification of ownership to any person named herein: and (2) recognition of the validity of any mining claim names herein.

C. It is understood that approval of this plan of operations does not constitute: (1) certification of ownership to any person named herein: and (2) recognition of the validity of any mining claim named herein.

D. It is understood that a bond equivalent to the actual cost of performing the agreed upon mitigation and reclamation measures may be required before this plan can be approved.

E. It is understood that approval of this plan does not relieve me of my responsibility to comply with any other applicable state or federal laws, rules or regulations.

F. It is understood that information provided with this plan marked confidential will be treated in accordance with the agency's laws, rules and regulations.

G. It is understood that if previously undiscovered cultural resources (historic or prehistoric objects, artifacts, or sites) are exposed as a result of operations, those operations will not proceed until notification is received from the Authorized Officer that provisions for mitigating unforeseen impacts as required by 36 CFR 228.4 (e) and 36CFR 800 have been complied with.

I/We have reviewed and agree to comply with all conditions in this plan of operations, including the recommended changes and reclamation requirements. I/We understand that the bond will not be released until the Authorized Officer in charge gives written approval of the reclamation work.

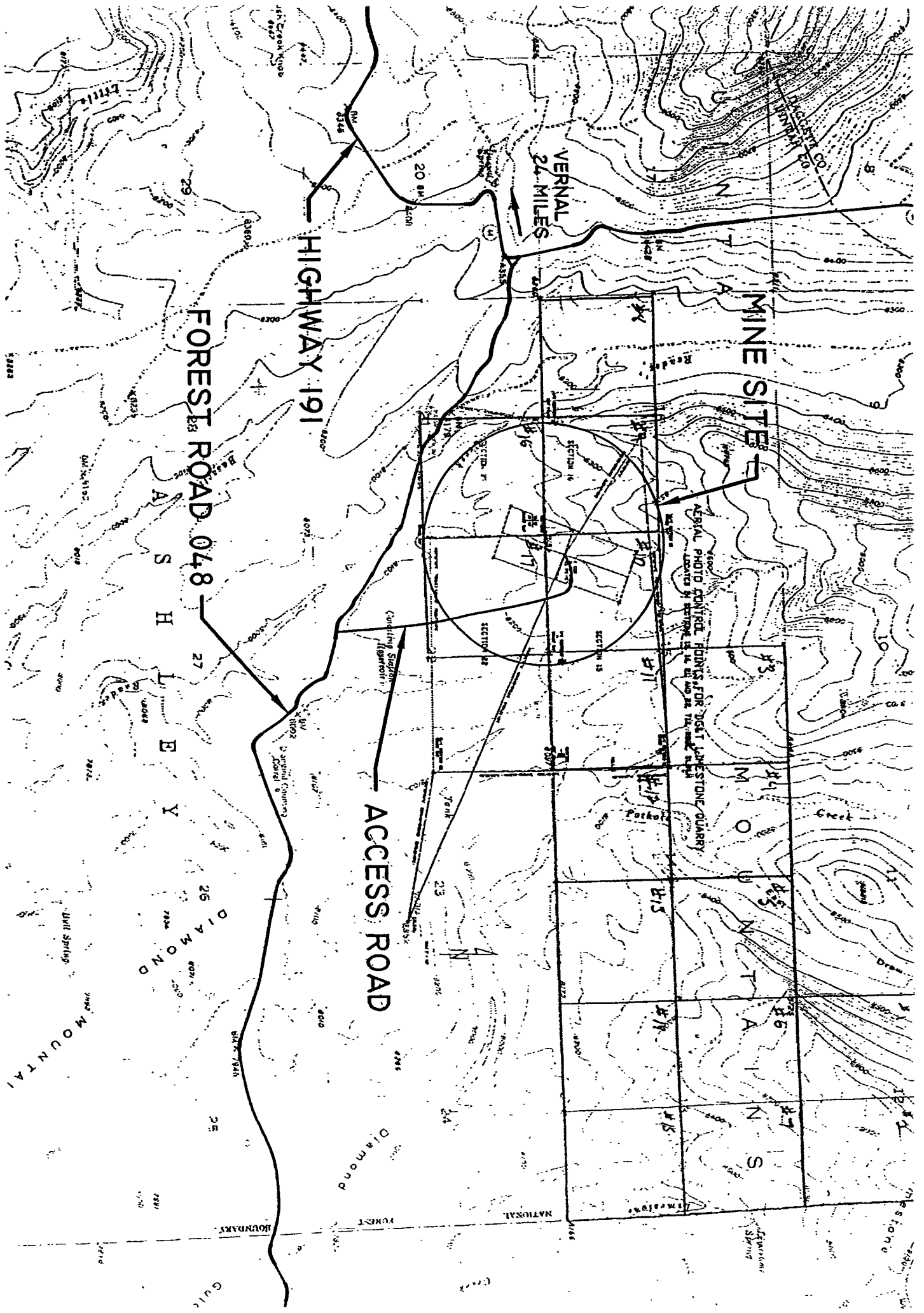
\_\_\_\_\_  
Operator (or Authorized Representative) (Date)

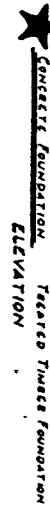
**OPERATING PLAN:**

_____ (Name)	_____ (Title)
_____ (Authorized Officer)	_____ (Date)

Public reporting burden for this collection of information is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Agriculture, Clearance Officer, OIRM, AG Box 7630, Washington, D.C. 20250; and to the Office of Management and Budget, Paperwork Reduction Project (OMB #0596-0022), Washington, D.C. 20503.







**(See Specifications)**

LIGHT DUTY CATTLE  
H-15 (LOADING)  
(See Specifications)

### Typical Formed Rails



Design Requirements	Light Duty M-15	Heavy Duty M-30
Formed rails - Max. Spacing	7 1/2"	7 1/2"
Maximum Spacing of	26 3/4"	14 1/2"
Supporting Members	23"	21"
Minimum Section Modulus	5.1 in. <sup>3</sup>	7.1 in. <sup>3</sup>
Ends of rails to be welded to supporting structure members.		

### SPECIFICATIONS -

Overse to be 7'-3" to 8'-0" wide, 1/4 inch in thickness. A built-up shell be provided along both sides of guard.

Guard shall provide a clearance section having a 2' opening full length, near corner of guard.

Guard shall provide a positive means of holding sections together when standing for flight.

Guard to be made of 1/2" steel plate which conforms to ASTM A 36.

In welding their design to American Welding Society Specification.

Guard to be given 2 coats of red lead or red lead iron oxide paint.

Guard shall have narrow end wings.

CONSTRUCTION NOTES

Cattle guard gates, of the proper loading designation, as manufactured by the Commercial Welding Co., Baker, Oregon, "Powder River" or equal are acceptable.



Note: H-20 loading and concrete foundations shall be used on all cattle guards.

Weight of reinforcing steel

TREATED TIMBER FOUNDATION

Columnized Mills - 10s.

Long Strains

Medium Strains

TREATED TIMBER

All timber to be constructed of good quality

Each member to be constructed of good quality

Design should be in accordance with the

All timber to be pressure treated to the

except for the posts. T-W-5881 or in a

percentage equivalent to 5% creosote

(F.W. 588 T-W-580) in petroleum oil

conforming to A.P.A. standard No. 11

most shall be in accordance with F.W. 588

T-W-571 except that the petroleum preservative

the finished shall be 10 lbs per cu ft

All timber to be treated on one face only

and to be set in dimensioned as shown in the

bill of material before treatment.

SIZE	16s.	10s.	20s.	25s.	30s.	35s.	40s.	45s.	50s.	55s.	60s.	65s.	70s.	75s.	80s.	85s.	90s.	95s.	100s.
1/2" x 1/2"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
3/4" x 1/2"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
1" x 1/2"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
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1" x 26 1/2"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
1" x 27"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
1" x 27 1/2"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
1" x 28"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
1" x 28 1/2"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
1" x 29"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
1" x 29 1/2"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
1" x 30"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
1" x 30 1/2"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
1" x 31"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
1" x 31 1/2"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
1" x 32"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
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1" x 36"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
1" x 36 1/2"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
1" x 37"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
1" x 37 1/2"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
1" x 38"	12	16	20	20	26	28	30	32	34	36	38	40	42	44	46				

NOTE: N-15 loading may be used for administrative site and camp ground roads. All other roads shall use the N-30 loading.

U. S. DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
REGION FOUR ALL NATIONAL FOREST

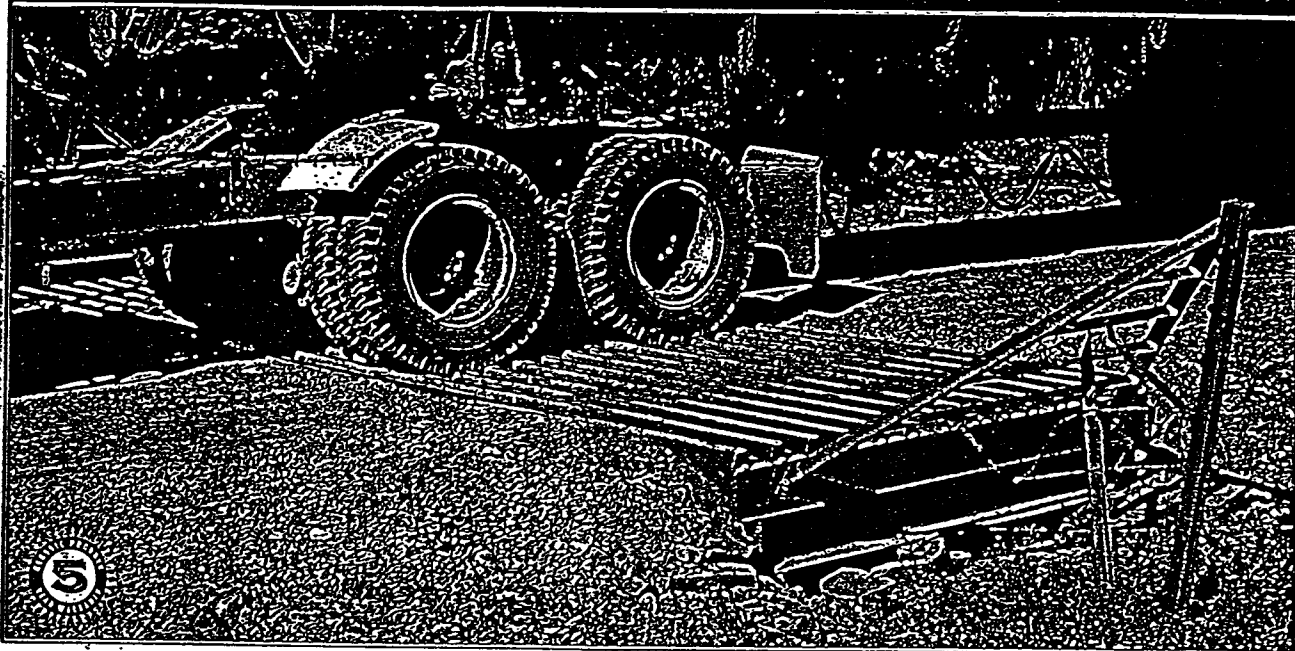
CATTLE GUARD  
H-15, H-20 LOADING

0517627 Part END	Y. H. K.	
Went N. O.	CAD	
Suspect - Sam.	1-28-48.	
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# CATTLE GUARDS

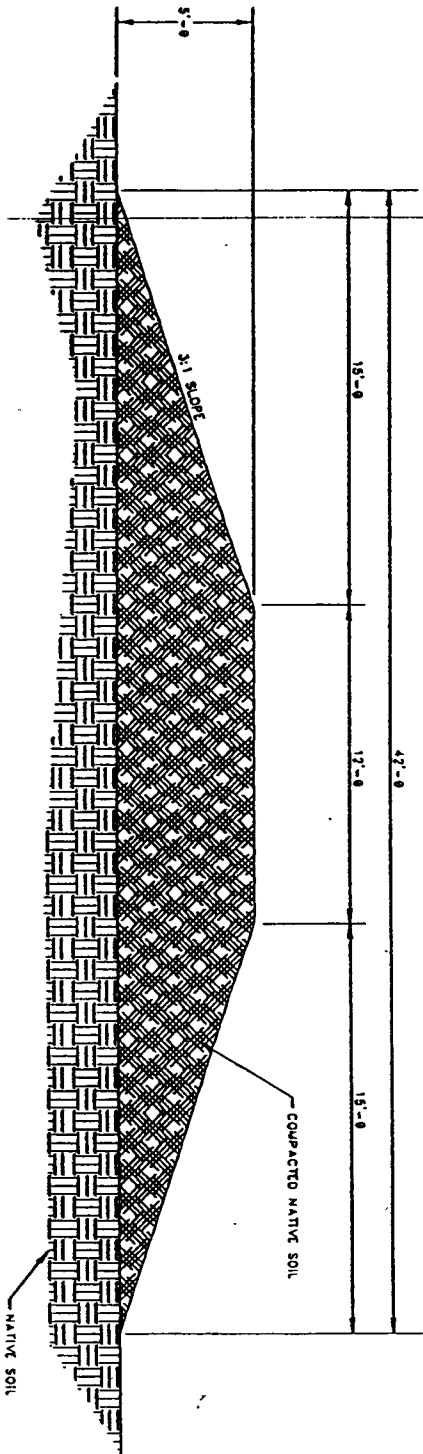
## CATTLE GUARDS



**D**esigned to meet H-15, H-20, U-54, and U-80 specifications, these cattle guards are used and recommended by state and federal agencies. These guards are available in lengths of 8 ft., 10 ft., 12 ft., and 14 ft. They can be installed end-to-end to meet your road width requirements. All four weight classes are available in 8 ft. road lengths. The H-15 and H-20 are also available in a 7 ft. 5 in. road length. Other options include a three rail clean out section (except on the U-80), end wings and steel posts.

## • SPECIFICATIONS •

<b>Model H-15</b>					
036-15708	7 ft 5 in x 8 ft	036-20714	7 ft 5 in x 14 ft	037-54812	8 ft x 12 ft
036-15710	7 ft 5 in x 10 ft	036-20808	8 ft x 8 ft	037-54814	8 ft x 14 ft
036-15712	7 ft 5 in x 12 ft	036-20810	8 ft x 10 ft	<b>Model U-80</b>	
036-15714	7 ft 5 in x 14 ft	036-20812	8 ft x 12 ft	036-80808	8 ft x 8 ft
036-15808	8 ft x 8 ft	036-20814	8 ft x 14 ft	036-80810	8 ft x 10 ft
036-15810	8 ft x 10 ft	<b>Model H-20 (with clean out)</b>		036-80812	8 ft x 12 ft
036-15812	8 ft x 12 ft	037-20708	7 ft 5 in x 8 ft	036-80814	8 ft x 14 ft
036-15814	8 ft x 14 ft	037-20710	7 ft 5 in x 10 ft		
<b>Model H-15 (with clean out)</b>		037-20712	7 ft 5 in x 12 ft	<b>Cattle Guard Accessories</b>	
037-15708	7 ft 5 in x 8 ft	037-20714	7 ft 5 in x 14 ft	036-00050	Inter-guard end wing set
037-15710	7 ft 5 in x 10 ft	037-20808	8 ft x 8 ft	036-00090	Inter-guard end wing post set
037-15712	7 ft 5 in x 12 ft	037-20810	8 ft x 10 ft	036-00220	Inter-guard end wing post set
037-15714	7 ft 5 in x 14 ft	037-20812	8 ft x 12 ft		
037-15808	8 ft x 8 ft	037-20814	8 ft x 14 ft	<b>Load Information</b>	
037-15810	8 ft x 10 ft	<b>Model U-54</b>		H-15	15,000 lbs.
037-15812	8 ft x 12 ft	036-54808	8 ft x 8 ft	H-20	20,000 lbs.
037-15814	8 ft x 14 ft	036-54810	8 ft x 10 ft	U-54	54,000 lbs.
<b>Model H-20</b>		036-54812	8 ft x 12 ft	U-80	80,000 lbs.
036-20708	7 ft 5 in x 8 ft	036-54814	8 ft x 14 ft		
036-20710	7 ft 5 in x 10 ft	<b>Model U-54 (with clean out)</b>			
036-20712	7 ft 5 in x 12 ft	037-54808	8 ft x 8 ft		
		037-54810	8 ft x 10 ft		
		037-54812	8 ft x 12 ft		
		037-54814	8 ft x 14 ft		

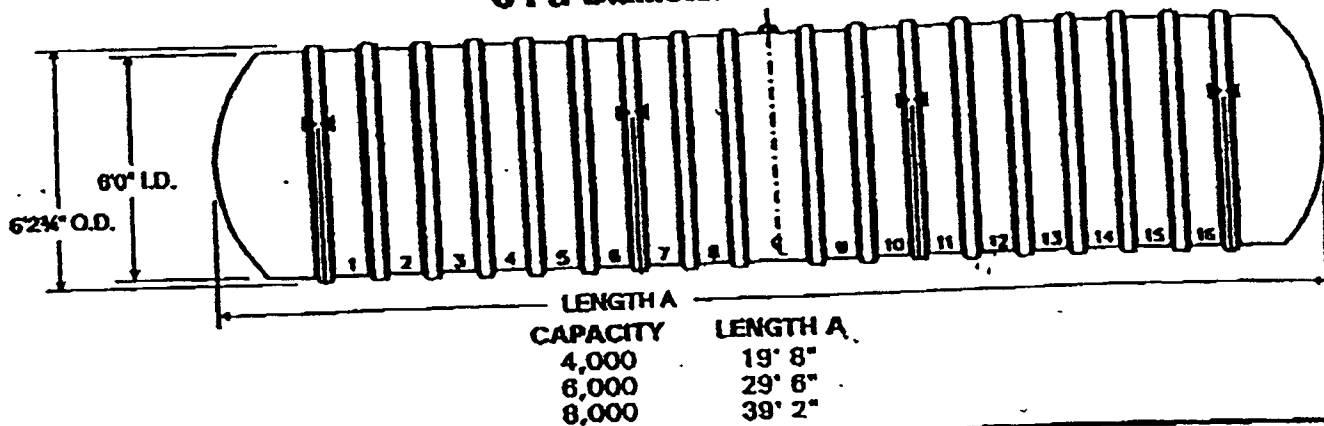


No.		REVISONS		DATE		BY		APVD	
Deseret				LIMESTONE ACCESS ROAD AND SETTLING POND X-SECTION					
[Generation & Transmission]				CAD FILE : SK980618 DWG					
ENG	BY	DATE	DRAFT	BY	DATE	WO			
ENG			DRAWN	KBS	6/98	DWG.			
APVD			CHK						
PLOT SCALE:				APVD			SK980618		

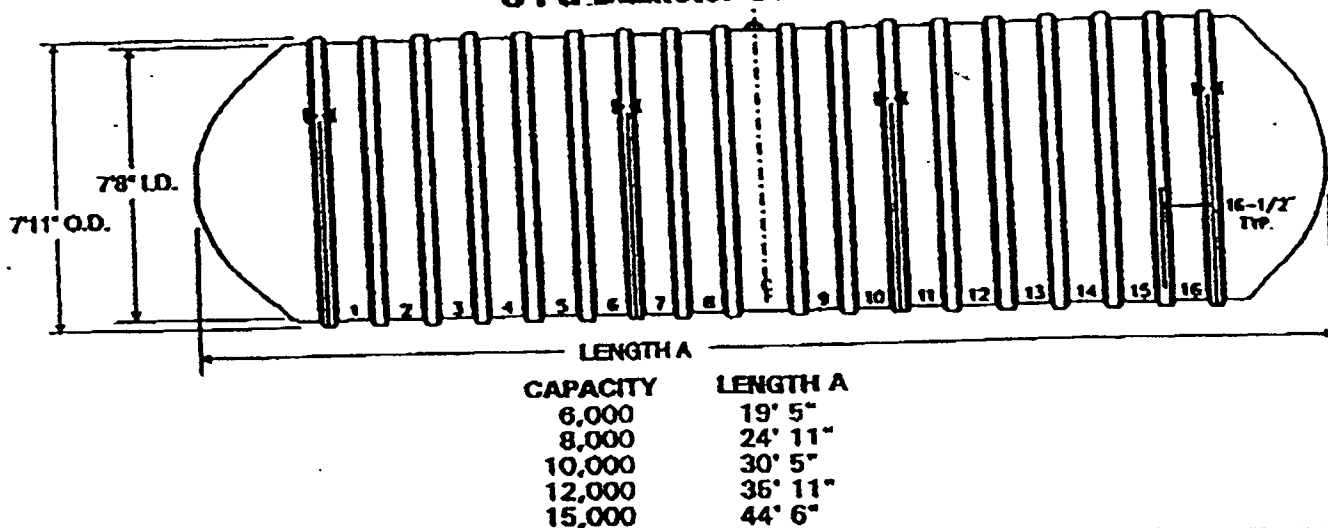
# Applied Engineering Capacity & Dimensions



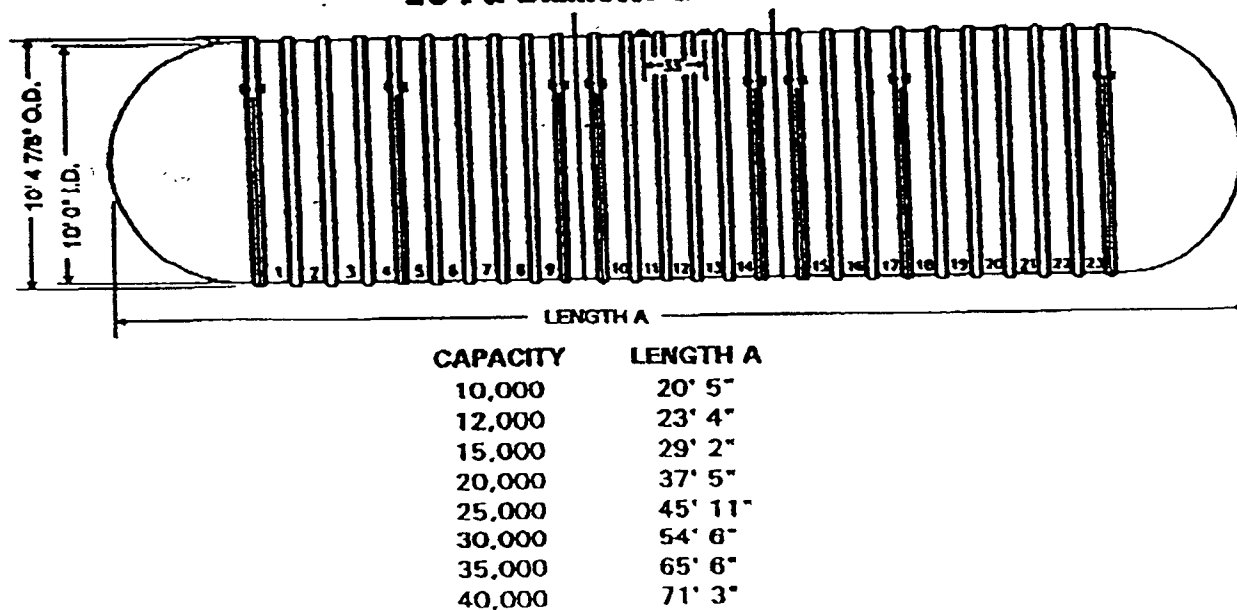
## 6 Ft. Diameter Series



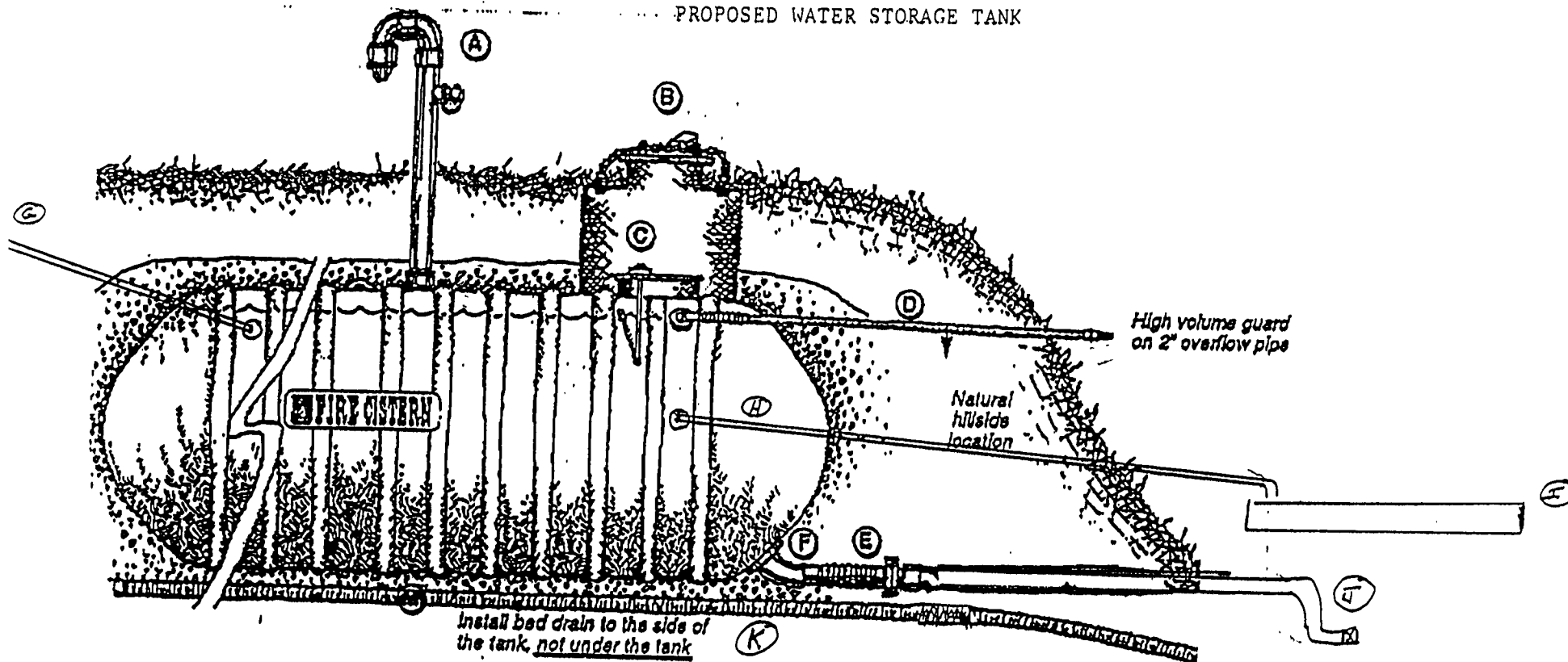
## 8 Ft. Diameter Series



## 10 Ft. Diameter Series



# PROPOSED WATER STORAGE TANK



## Components

- A. Vent and Fill Piping
- B. Lockable Manhole Access
- C. Tank Access
- D. Overflow Pipe
- E. Flexible Pie
- F. Tank Outlet Pipe
- G. Inlet Pipe from Spring
- H. Supply Pipe to Trough
- I. Stock Watering Trough
- J. Isolation Valve for Water truck and Tank Drain
- K. Bed Drain



**Bonanza Power Plant**  
12500 East 25500 South □ Vernal, Utah 84078-8525  
(435) 789-9000 □ Fax (435) 781-5816

U.S. Forest Service  
355 North Vernal Avenue  
Vernal, Utah 84078  
Attention: Chauncey Todd

March 8, 1999



Dear Mr. Todd:

Deseret Generation & Transmission request an amendment to our submitted plan of operations dated June 25, 1998.

Section IV Item D needs to be changed to include a well-drilled onsite to be used for dust abatement.

The well will have a four-inch casing the full length. The well may be up to 400 feet deep. It will have a submersible pump and be powered a 12.5 kV generator. The generator will be propane fueled.

Sincerely,

A handwritten signature in cursive script, reading "Jerry Hascall".

Jerry Hascall  
Operations Superintendent  
Deseret Generation & Transmission

# **APPENDIX G**

## **MAPS**

### **Vicinity Map**

#### **Location of Proposed Mining Disturbances**

#### **DG&T Limestone Mine Proposal**

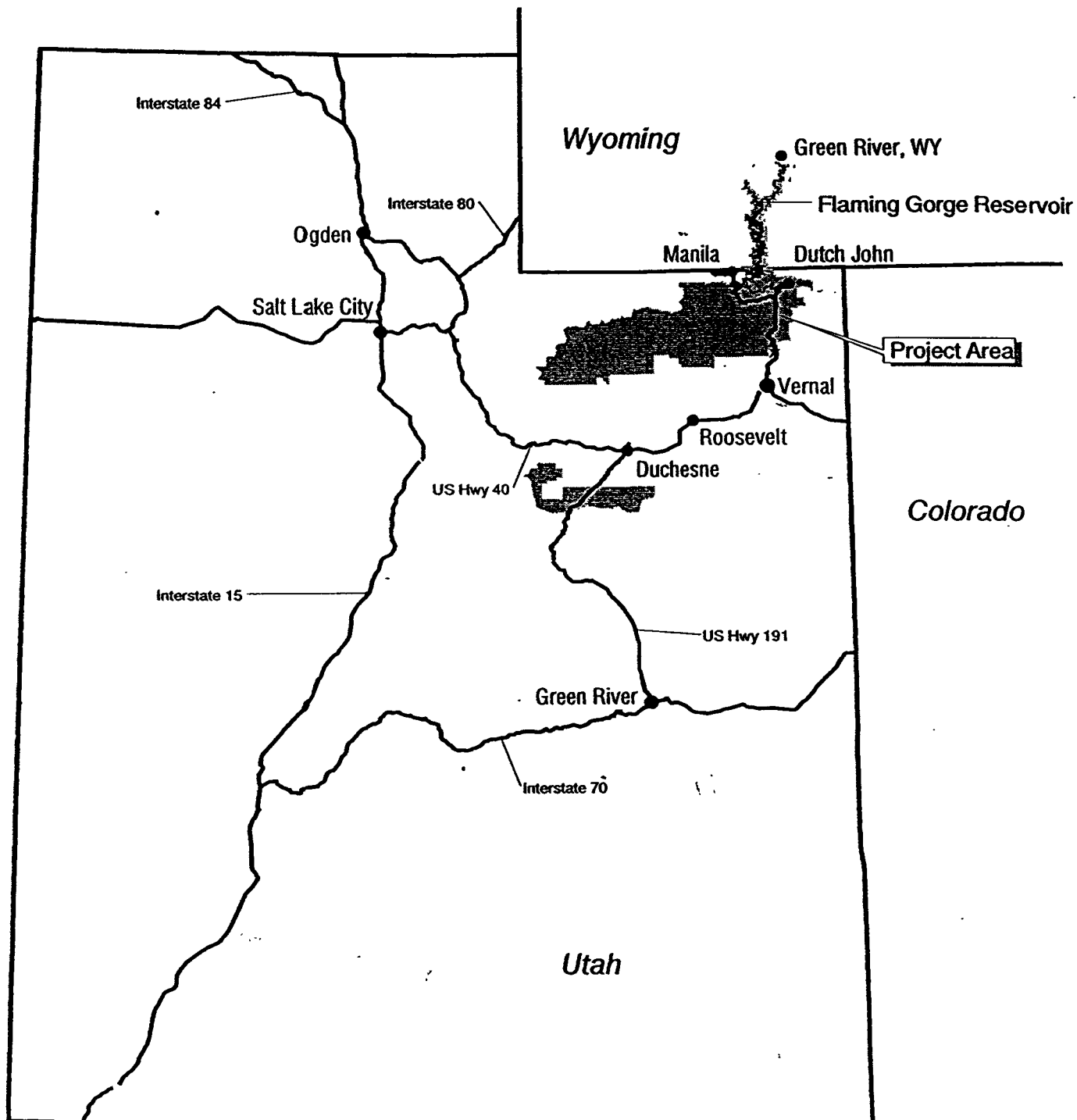


# APPENDIX G

## Vicinity Map

### DG & T Limestone Mine Proposal

#### Vernal Ranger District - Ashley National Forest

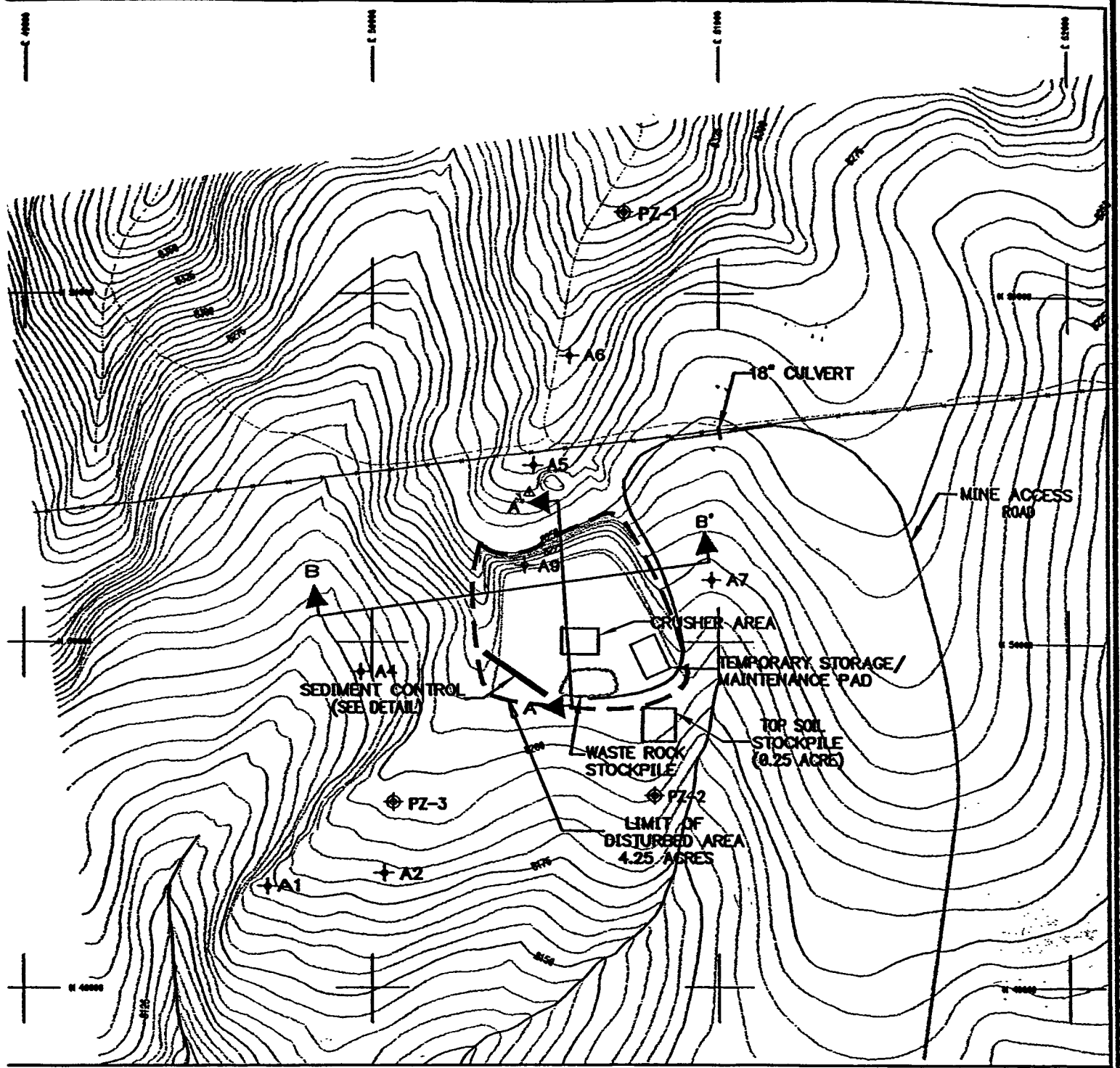


Scale  
1:3,000,000

7/22/98  
sam



 Ashley National  
Forest



## LEGEND

- ◆PZ-3 LOCATION OF MONITORING PIEZOMETER
- +A9 LOCATION OF EXPLORATORY BORING
- EPHEMERAL STREAM
- LIMITS OF DISTURBED AREA
- A-A' B-B' LOCATION OF CROSS SECTIONS SHOWN ON FIGURE 2

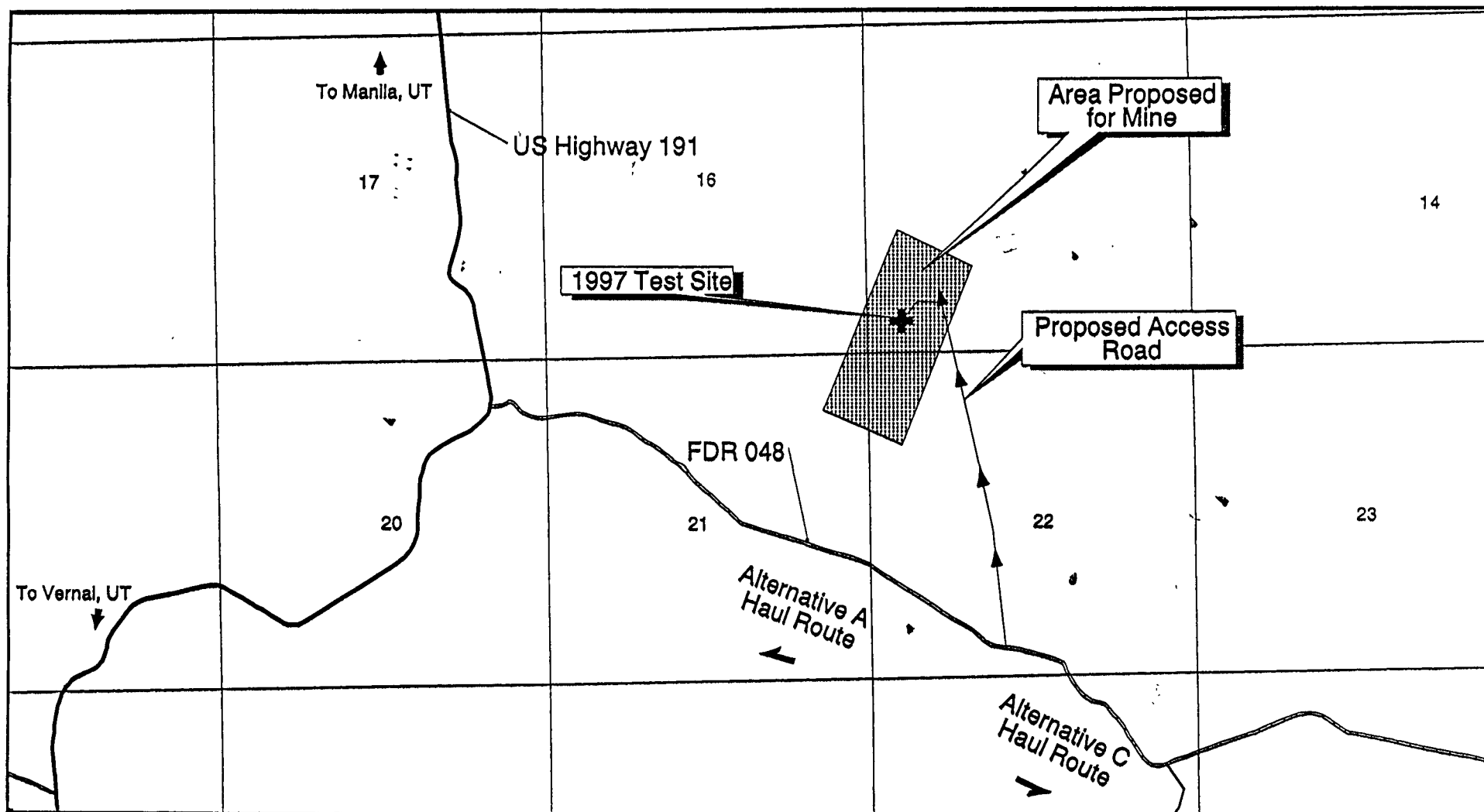


DESERET GENERATION & TRANSMISSION CO-OPERATIVE

LOCATION OF PROPOSED MINING  
DISTURBANCES AND LOCATIONS  
OF MINE CROSS SECTIONS  
DIAMOND MOUNTAIN RESOURCES  
LIMESTONE MINE

# DG & T Limestone Mine Proposal

## Ashley National Forest / Vernal Ranger District



Scale  
1:29,000  
7/22/98 sam

0 0.25 0.5 0.75 1 1.25 1.5 1.75 2 Miles

## **APPENDIX H**

### **RESPONSE TO COMMENTS RECEIVED DURING 30 DAY COMMENT AND REVIEW PERIOD**

# **DESERET GENERATION AND TRANSMISSION LIMESTONE MINING ENVIRONMENTAL ASSESSMENT**

## **APPENDIX H - RESPONSE TO COMMENTS RECEIVED DURING 30 DAY COMMENT AND REVIEW PERIOD**

The 30 day review and comment period for the Deseret Generation and Transmission (DG&T) Minerals Plan of Operations Environmental Assessment (EA) for Limestone Mining on Diamond Mountain ended on April 23, 1999. As of April 27, 1999, four letters and three verbal comments were received. The respondents are: Uintah County Commissioners, Joleen Bell, Craig Axford of Utah Environmental Congress, Bruce Brown, Dave Haslam, and Brent Hanchett.

### **UINTAH COUNTY COMMISSIONERS**

1. We fully support the DG&T limestone project.

*Reply: Thank you for your comment.*

### **JOLEEN BELL**

1. The 1872 Mining Law is outdated. How is modern civilization to function under these outmoded, outdated archaic laws?

*Response: This concern is beyond the scope of this decision. Refer to Chapter I - Introduction, Section C - 1872 Mining Act (EA 1).*

2. The belief that the restoration of natural habitat is possible is a completely false premise.

*Response: Research and experience has developed techniques, management practices, and professional knowledge necessary to reclaim disturbances over time to near natural habitats. Based on the types of soils and vegetation within the project area discussed in Chapter II - Affected Environment (EA 3-6), the expected outcome from the proposed mine would have a short-term impact (Chapter IV - Environmental Consequences, EA 14-16). For this proposal, "Short-term" refers to the period of time when a particular area is actively being mined or used for the mining operation. However, restoration is expected to occur within three years after an area has been reclaimed (Chapter IV, EA 16). The mitigation measures outlined in Chapter IV (EA 14-16) and Appendix E (Best Management Practices - Reclamation) would insure the best possible restoration of the area.*

## UTAH ENVIRONMENTAL CONGRESS

1. The limestone being sought by DG&T is a necessary component of the scrubbing process at their operation. This process benefits the environment as related to air quality.

*Response: Thank you for your comment.*

2. We are concerned with the proximity of the proposed operation to the Inventoried RARE II Area. While the project itself would not be located within the roadless area we believe it would have significant impacts to the area in the future.

*Response: The EA discloses that the proposed mine may have indirect impacts to the inventoried roadless area or direct impacts to the perception of roadless characteristics (Chapter IV - Environmental Consequences, EA 22). However, the effects would not be significant for the following reasons:*

- The inventoried roadless area is located approximately 1.25 miles north of the project area (Chapter III - Affected Environment, EA 12). The distance is sufficient enough to buffer most mining activity generated at the site.*
- The most likely impact to the inventoried roadless area would be the effect of noise from blasting and heavy trucks on the perception of remoteness (Chapter IV, EA 23). Drilling and blasting would be expected to occur once a year for a two to three week period (Chapter I - Introduction, Section Be - Proposed Action, EA 1). Truck noise heard from within the roadless area would be difficult to distinguish from the already present sounds of truck traffic on U.S. Highway 191 (Chapter III and Chapter IV, EA 12 and 23, respectively). The Highway is closer to the inventoried roadless area, within about 5/8 mile, than the mine site. The sound of blasting would not change the type of noise heard within the roadless area. Blasting can already be heard within the southern portion of the roadless area from the much larger existing open pit phosphate mine located along U.S. Highway 191 and the southern boundary of the Ashley National Forest. Mitigation measures to restrict mining activities (hauling and processing) during higher recreation time periods such as holiday weekends and some hunting seasons are part of the proposal. General weekends would also restrict mining activities unless special approval is received from the Forest Service authorized officer (Chapter IV, EA 20). These mitigation measures would reduce any impact of the mining activities on roadless characteristics (Chapter IV, EA 23).*
- The proposal is to mine no more than five acres at one time (Chapter I - Introduction, EA 1). The size of the mine along with the mitigation measures contribute to the lack of significant impacts (Chapter V, EA 27).*
- When considering past, present, and future activities, this proposal would not change or substantially add to the existing use patterns within the inventoried roadless area. Neither action alternative is anticipated to significantly affect characteristics within the roadless area because of vegetation cover between the project area and the roadless area boundary, and the type and amount of ongoing activities in the general project area (motorized recreation, livestock grazing, and recent yurt construction) (Chapter V - Cumulative Impacts, EA 26 - 27) nor will it significantly diminish the ability of a roadless area visitor to achieve the degree of solitude and remoteness that is currently possible.*

3. The Forest Service downplays possible cumulative effects on the roadless area by stating "There are no proposals to designate the project or surrounding area as "wilderness"."

*Response: The statement that there are no proposals to designate the roadless area as "wilderness" is simply a fact. The reason there are no proposals to designate the roadless area as "wilderness" is primarily based on the evaluation of the existing roadless characteristics. The existing condition of the roadless area and its associated characteristics is a key factor in determining the effects of the proposal individually or cumulatively. The most potential for cumulative impact within the inventoried roadless area from this proposal would be the indirect impacts on remoteness and solitude, but because of their existing level and when considering the other activities and amount of recreation in the area, any effect would be insignificant when looking at the total picture. The current condition of the land and use patterns would make the project area nearly impossible to manage as wilderness for all alternatives (including the "No Action" alternative). (Chapter V, EA 26-28)*

*Refer to the response to Comment 3, above, for additional references to possible cumulative effects.*

4. The EA downplays the potential ability of the roadless area to provide opportunities for solitude and remoteness. These values still could exist within the roadless area and should be preserved.

*Response: The inventoried roadless area is relatively accessible because it is within 5/8 mile of U.S. Highway 191, and is surrounded by several other roads which have been used for motorized access. Motorized access is allowed area wide according to the current district transportation management plan. Many "two-track" roads have been established within and adjacent to the project area, with a road density of approximately 2.2 miles per square mile. In addition, the roadless area has private lands to the east and a pipeline and powerline corridor along the northeast. The primary recreation use of the area is motorized travel via ATV during hunting season and motorized dispersed camping. Because of the existing facilities and current uses of the area, the existing level of solitude and ability to feel remote within the area is low. Most recreationists looking for solitude would most likely not choose this area despite the mining proposal. (EA, Chapter III 12-13 and Chapter IV 22-24) Also refer to response to Comment 3, above.*

5. The proposal potentially has a direct impact on these roadless values through widening of Forest Development Road 048 to accommodate increased traffic through the area. We are concerned about the possibility of increasing visitation to the area. Widening the road makes the area more accessible to many vehicles that otherwise might be discouraged from entering the region. A maintained two-lane road could also cause off-road vehicle users to travel further into the forest in search of off-road experiences, thus impacting the roadless area.

*Response: Forest Development Road 048 is already an improved, well maintained gravel road that easily provides access to any visitor driving any type of vehicle. The proposal to widen the road would not improve access but would make access safer. The current condition of the road is suitable to vehicles passing one another but is not suitable when heavy trucks are added into the equation. (EA, Chapter III 11 and Chapter IV 21-22)*

*This inventoried roadless area is not a remote area. Access can be gained via motorized and non-motorized means. Also refer to response to Comment 4, above.*

6. In an effort to provide a wider range of alternatives, the Forest Service and DG&T could have searched for another location, further from a roadless area.

*Response: In 1997 a site approximately 1 mile northeast of the proposed mine site was studied. It was determined that this site would have more impacts on wildlife. Other sites were looked at but were dismissed. It was determined that this proposed site was the best overall site due to existing access, proximity to existing activities, and fewer resource impacts.*

7. We are troubled by the failure of the Forest Service to do any water quality monitoring on Reader Creek.

*Response: Since water quality samples have not been collected on Reader Creek, baseline water quality information will be established by using a reference site with the same geoclimatic setting. If sampling of Reader Creek can occur before mining activities commence, we will do so. The type of mining that will occur poses no water quality threats. If a hazardous waste spill or some type of leakage occurs, it will be easily noticed and understood that it is not a common baseline occurrence.*

8. EA dismisses concerns of impacts of noise on wildlife. No studies are cited that document the incredible ability of vertebrates to adapt to noise.

*Response: Experience has developed professional knowledge necessary to make determinations. Vertebrates do in fact adjust to noise and other changes in their habitat. Wildlife are commonly found along roads and within road corridors, resorts, and other recreation facilities in the general area.*

*The proposal would have limited impact on wildlife species due to noise production. Drilling and blasting would be expected to take place once per year for a two to three week period. The most likely times would be in May or June (Chapter I - Introduction, EA 1). Noise from the mining operation would be appreciable, and could cause some of the animals to move away from the immediate vicinity. This would not cause a serious problem because of the expansive nature of the habitat, the unsaturated and mobile nature of the vertebrate populations, and the tendency of vertebrates to adapt to the noise (Chapter IV, EA 17).*

*Also, mining operations would be seasonal (May-October) thus there would be no noise production during the most critical time period "winter" for a majority of species. The small size of the operation itself would have minimal effects to wildlife especially when viewed within the great expanse of undisturbed habitat within the area.*

9. No mention is made of the possible effects of increased traffic along an improved two lane road on migration through this critical deer and elk range or the impacts of increased incidents of road kill on the population.

*Response: Page 11 of the EA describes the existing condition of FDR 048 (as presently varying from one to two lanes in width with a design speed of 20 m.p.h.). Mitigation measures described on page 21 calls for the road to be upgraded to a consistent double lane road but does not call for the condition (road surface) to change. No proposal has been made to increase the speed limit on this road. Other than the additional mine related traffic, the use of the road is not expected to increase as a result of road*



improvements. If transport of materials is restricted to daylight hours this concern would be minimized (Chapter IV, EA 16). The site distance for drivers to see wildlife along the roads is very good because there is limited vegetation for wildlife to be hidden in along the road. This road, as with all unpaved Forest Service roads, has a low incidence of road. Simply increasing the width would not change the likelihood of vehicular-wildlife accidents.

The area proposed for the mining operation is not defined as critical habitat for deer or elk. The area is classified as high value summer range which is quite extensive and consists of many thousands of acres on the north and south slopes of the Uintas (Chapter III, EA 7).

10. Utah Environmental Congress urges the Forest Service and DG&T to locate another location for this operation and offer it as an alternative. This would enable the FS to offer a "reasonable range of alternatives" as required by law.

*Response: The alternatives in the EA were in response to comments received from scoping and internal correspondence. The alternatives were driven by the issues (primarily transportation and safety). Other issues were resolved via mitigation measures. Additional alternatives were considered but dismissed from detailed analysis and include:*

1. *An alternative that would mine limestone from a different area was considered. The "different area" is located northeast of the project area and was dismissed from detailed study for the following reasons:*
  - *In 1997, DG&T tested two sites for limestone, the proposed site in the EA and a second site northeast of the proposal. At that time the Forest Service did an analysis of the two sites and authorized DG&T to drill and sample both sites. From the samples, DG&T preferred the site proposed in the EA because it contained a larger supply of limestone and it was also a more pure form of limestone which would better meet their needs.*
  - *The Forest Service preferred the proposed site in the EA versus the area located northeast because it was closer to FR 048 and had less anticipated impacts on wildlife habitat. The two sites were about the same distance from the inventoried roadless area located 1.25 miles to the north.*

*After limestone samples were removed and tested, the Forest Service made the decision to allow DG&T to remove a bulk sample from the proposed site to run through the air pollution control process at the power plant. The test results were satisfactory. DG&T then submitted the plan of operations which led to the development of the proposed action disclosed in the EA.*

2. *An alternative was considered that would require DG&T to process the limestone off National Forest System Lands. This alternative was dismissed from detailed analysis because preliminary discussions determined this alternative would not be economically efficient and much of the reject material necessary for reclamation would be removed from the mine site and would have to be imported to the site for reclamation.*
3. *An alternative was considered that would provide for an alternate haul route from the mine site east on FR 048 and then south on FR 217. This alternative was dropped from detailed study for the following reasons:*
  - *The existing condition of the system road is a two-track dirt road that would require major reconstruction before it could be used.*

- *FR 217 travels through transitory range for big game and sage grouse habitat with leks.*
- *By reconstructing the two-track road, the type of use would change. Whereas, reconstructing FR 048 would not change the type of vehicles that could access the area.*
- 4. *An alternative was considered that would require DG&T to transport all water needed for the operation and dust abatement from off Forest. This alternative was dismissed because water rights are determined by the State. DG&T applied for water rights from the State. The State has approved water rights for this proposal.*

## **BRUCE BROWN**

1. Increased truck traffic causing noise and adding dust to the atmosphere.

*Response: The additional truck traffic will undoubtedly add to the noise level in the area. Noise and traffic effects would be mitigated by limiting hauling to weekdays unless special approval is received by the Forest Service authorized officer. (Chapter IV, EA 21)*

*Air quality would be minimally effected. All mining activities would be required to meet Utah State air quality standards. This would include using water or a dust palliative to minimize dust. (Chapter IV, EA 15-16)*

2. The use of Magnesium Chloride to control dust makes the road slick making driving more hazardous, acts as a catalyst in starting chuck holes and washboarding on gravel roads. It is very sticky to automobiles and possibly speeds up corrosion.

*Response: It is possible that the use of Magnesium Chloride or Calcium Chloride can cause roads to become somewhat slick. This should not become a safety factor when the roads are adequately maintained and are driven at safe speeds. Increased road maintenance by DG&T would repair chuckholes and washboarding, as it occurs. Through improved technology, producers of dust control products such as Magnesium Chloride have developed products that are less corrosive. It is anticipated, although not confirmed, that the corrosiveness of the dust control products are no more corrosive than the salt used to control ice and snow on most highways.*

3. There are 150 plus landowners on Diamond Mountain some with water wells and some with plans to drill for water. What effect if any would the large quantity of water usage have on existing wells or future drilling plans for wells in the area?

*Response: The Mississippian limestone layer that well drilling will occur on is over 200 feet thick. Once drilling hits the water table, depth could be between 200 and 400 feet. At these depths, ground water is considered a deep source, and as whereas springs and wells are from shallow sources. In addition, mining activities will only occur on a seasonal basis and would not deplete the water table. Therefore, there will be no effect on existing or future wells along Diamond Mountain. Refer to Chapter III, EA 4-5 and Chapter IV, EA 14-15.*

4. If the water used for the mining operation was alkaline in nature, would the waste water be damaging in the long term to other water wells?

*Response: With the combination of storage detention ponds, best management practices, and the extensive depth of the water table and distance from any source areas, waste water would not impair existing water wells over the long or even short term.*

5. Suggest the haul road be widened and paved to state standards to include slow traffic lanes as needed.

*Response: The EA, on page 21, discusses widening the haul route on FDR 048 to a double lane road. The Forest Service would not be against the road being paved to proper standards. However, at the present time, the Forest Service does not have plans for such improvement.*

#### **DAVE HASLAM**

1. Not in favor of Alternative A. Does not want additional truck traffic on U.S. Highway 191 and traveling through Vernal. This highway is now a National Scenic Byway and will see more tourist traffic. Alternative C would interfere with recreation traffic and the road would require realignment to accommodate heavy truck traffic. Suggest reconstruction of Forest Development Road 217 as the haul road.

*Response: We support the consideration of reconstructing Forest Development Road 217. However, use of this road also has some considerations. Currently the road is a two-track road in poor condition. The road also transects transitory range for mule deer and important sage grouse habitat. An additional detailed analysis could be considered if funding is available to reconstruct the road to heavy truck standards. However, the analysis could find the road unfeasible based on resource considerations such as wildlife habitat.*

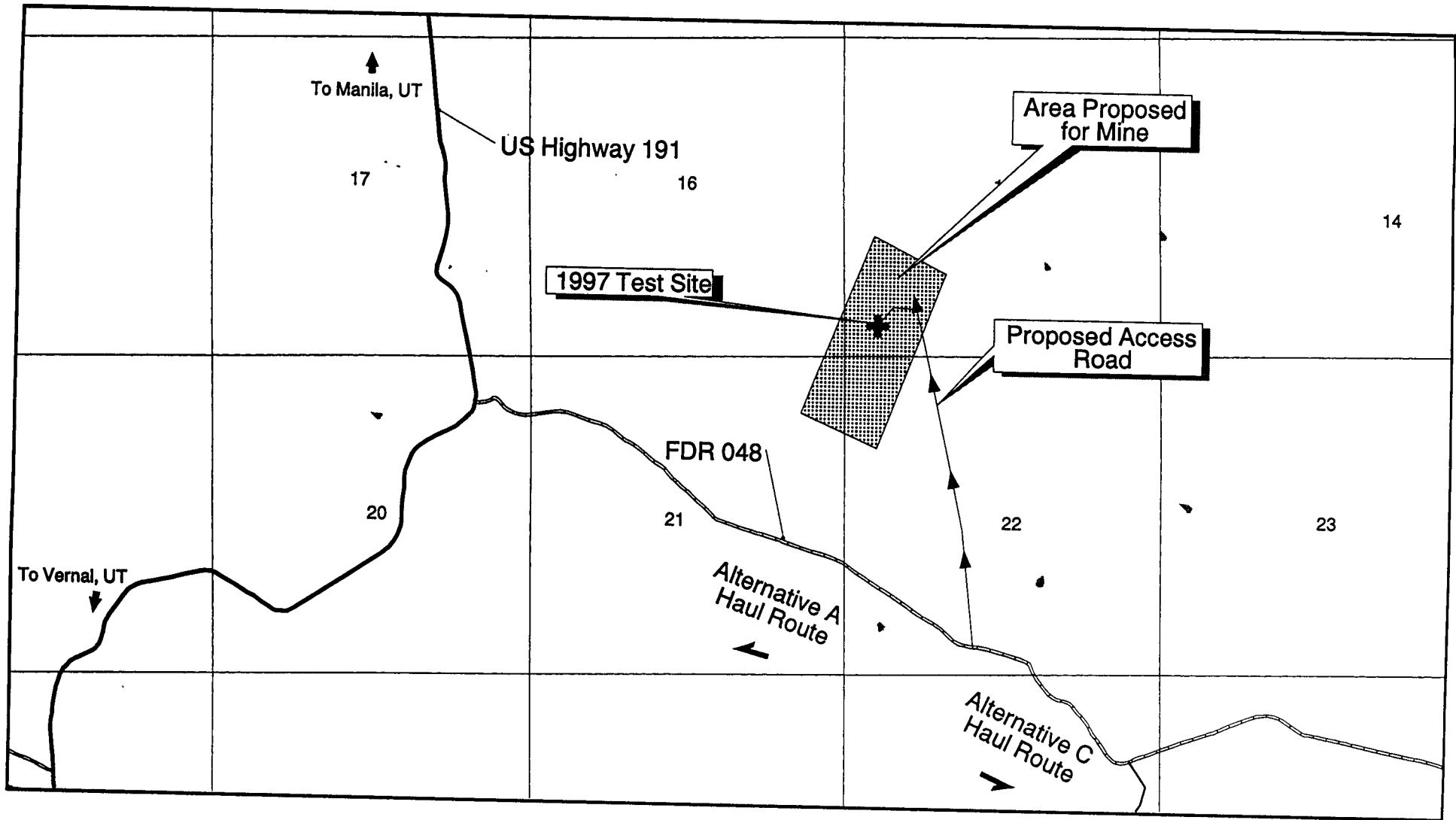
#### **BRENT HANCHETT**

1. I disagree with the idea of using FDR 217 as the mine haul road. I hunt the area and reconstructing this road would have an impact on the sage grouse and deer herds in the area.

*Response: Thank you for your comment.*

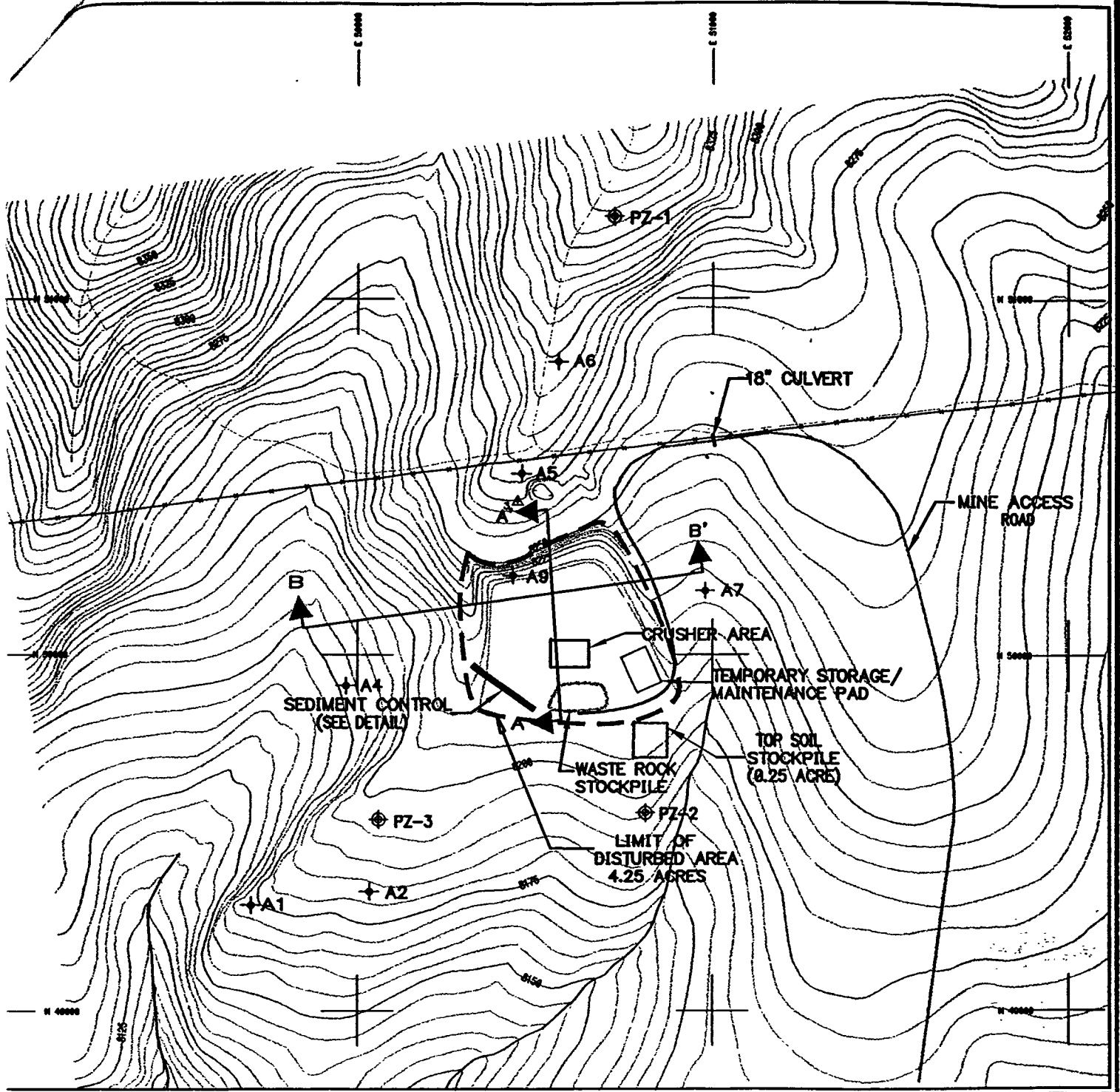
From the EA

# DG & T Limestone Mine Proposal Ashley National Forest / Vernal Ranger District



Scale  
1:29,000  
7/22/98 sam





## LEGEND

- PZ-3 LOCATION OF MONITORING PIEZOMETER
- + A9 LOCATION OF EXPLORATORY BORING
- EPHEMERAL STREAM
- LIMITS OF DISTURBED AREA
- A-A' B-B' LOCATION OF CROSS SECTIONS SHOWN ON FIGURE 2



0 500 FT  
SCALE (1"=50')  
CONTOUR INTERVAL IS 5 FEET

DESERET GENERATION & TRANSMISSION CO-OPERATIVE

LOCATION OF PROPOSED MINING  
DISTURBANCES AND LOCATIONS  
OF MINE CROSS SECTIONS  
DIAMOND MOUNTAIN RESOURCES  
LIMESTONE MINE

JANUARY 1999/REV 1.0

FIGURE 1